

Trying 3106016892...Open

Welcome to STN International! Enter x:x

LOGINID:sssptau156cxh

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * * * * * * * * * Welcome to STN International * * * * * * * * * * *

NEWS 1 Web Page URLs for STN Seminar Schedule - N. America
NEWS 2 Sep 17 IMSworld Pharmaceutical Company Directory name change to PHARMASEARCH
NEWS 3 Oct 09 Korean abstracts now included in Derwent World Patents Index
NEWS 4 Oct 09 Number of Derwent World Patents Index updates increased
NEWS 5 Oct 15 Calculated properties now in the REGISTRY/ZREGISTRY File
NEWS 6 Oct 22 Over 1 million reactions added to CASREACT
NEWS 7 Oct 22 DGENE GETSIM has been improved
NEWS 8 Oct 29 AAASD no longer available
NEWS 9 Nov 19 New Search Capabilities USPATFULL and USPAT2
NEWS 10 Nov 19 TOXCENTER(SM) - new toxicology file now available on STN
NEWS 11 Nov 29 COPPERLIT now available on STN
NEWS 12 Nov 29 DWPI revisions to NTIS and US Provisional Numbers
NEWS 13 Nov 30 Files VETU and VETB to have open access
NEWS 14 Dec 10 WPINDEX/WPIDS/WPIX New and Revised Manual Codes for 2002
NEWS 15 Dec 10 DGENE BLAST Homology Search
NEWS 16 Dec 17 WELDASEARCH now available on STN
NEWS 17 Dec 17 STANDARDS now available on STN
NEWS 18 Dec 17 New fields for DPCI
NEWS 19 Dec 19 CAS Roles modified
NEWS 20 Dec 19 1907-1946 data and page images added to CA and CApplus

NEWS EXPRESS August 15 CURRENT WINDOWS VERSION IS V6.0c,
CURRENT MACINTOSH VERSION IS V6.0 (ENG) AND V6.0J (JP),
AND CURRENT DISCOVER FILE IS DATED 07 AUGUST 2001
NEWS HOURS STN Operating Hours Plus Help Desk Availability
NEWS INTER General Internet Information
NEWS LOGIN Welcome Banner and News Items
NEWS PHONE Direct Dial and Telecommunication Network Access to STN
NEWS WWW CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that specific topic.

All use of STN is subject to the provisions of the STN Customer agreement. Please note that this agreement limits use to scientific research. Use for software development or design or implementation of commercial gateways or other similar uses is prohibited and may result in loss of user privileges and other penalties.

* * * * * * * * * * * * * STN Columbus * * * * * * * * * * * * *

FILE 'HOME' ENTERED AT 10:34:31 ON 23 JAN 2002

=> file ca

COST IN U.S. DOLLARS

FULL ESTIMATED COST

| SINCE FILE ENTRY | TOTAL SESSION |
|------------------|---------------|
| 0.15 | 0.15 |

FILE 'CA' ENTERED AT 10:34:40 ON 23 JAN 2002

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

STN Database

Search in #

Cited in

Search Notes

Leave in
file

*Cynthia
Hamilton*

CYNTHIA HAMILTON
PRIMARY EXAMINER

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications.

FILE COVERS 1907 - 17 Jan 2002 VOL 136 ISS 4
FILE LAST UPDATED: 17 Jan 2002 (20020117/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

This file supports REG1stRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

The CA file now provides online access to patents and literature covered in CA from 1907 to the present. Bibliographic information and abstracts were added in 2001 for over 3.8 million records from 1907-1966.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

The CA Lexicon is now available in the Controlled Term (/CT) field. Enter HELP LEXICON for full details.

Attention, the CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

```
=> s pfeiffer?/au and calixarene
      5451 PFEIFFER?/AU
      3242 CALIXARENE
L1          2 PFEIFFER?/AU AND CALIXARENE
```

```
=> d all 1-2
```

```
L1  ANSWER 1 OF 2  CA  COPYRIGHT 2002 ACS
AN  130:296838  CA
TI  Synthesis of chiral calix[n]arenes. Part 2: Synthesis of new chiral
    calix[n]arenes based on (p-hydroxyphenyl)menthone
AU  Soi, Antonio; Pfeiffer, Jens; Jauch, Johann; Schurig, Volker
CS  Institut fur Organische Chemie, Universitat Tubingen, Tubingen, D-72076,
    Germany
SO  Tetrahedron: Asymmetry (1999), 10(1), 177-182
    CODEN: TASYE3; ISSN: 0957-4166
PB  Elsevier Science Ltd.
DT  Journal
LA  English
CC  30-10 (Terpenes and Terpenoids)
    Section cross-reference(s): 25
OS  CASREACT 130:296838
AB  The synthesis of new chiral calix[n]arenes, related to Corey's
    phenyl-menthol, is described. Starting from enantiomerically pure
    (R)-(+)-pulegone, calix[n]arenes with different ring sizes could be
    obtained in reasonable yield.
ST  bromobutoxybenzene prepn conjugate addn pulegone; calixarene
    chiral prepn
IT  Metacyclophanes
    RL: SPN (Synthetic preparation); PREP (Preparation)
        (chiral; synthesis of new chiral calix[n]arenes based on
        (p-hydroxyphenyl)menthone)
```

IT Chiral synthons
(synthesis of new chiral calix[n]arenes based on (p-hydroxyphenyl)menthone)

IT 89-82-7, (R)-(+)-Pulegone 106-41-2, 4-Bromophenol 115-11-7, Isobutene, reactions
RL: RCT (Reactant)
(synthesis of new chiral calix[n]arenes based on (p-hydroxyphenyl)menthone)

IT 60876-70-2P, 4-Bromophenol tert-butyl ether 223429-33-2P 223429-34-3P
223429-35-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(synthesis of new chiral calix[n]arenes based on (p-hydroxyphenyl)menthone)

IT 223429-36-5P 223429-37-6P 223429-38-7P 223429-39-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of new chiral calix[n]arenes based on (p-hydroxyphenyl)menthone)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; Calixarenes: A Versatile Class of Macroyclic Compounds 1991
- (2) Beyermann, H; Recl Trav Chim Pays-Bas 1962, V81, P691
- (3) Bohmer, V; Angew Chem 1995, V107, P785
- (4) Bohmer, V; Angew Chem, Int Ed Engl 1995, V34, P713
- (5) Bohmer, V; J Incl Phenom 1994, V19, P17
- (6) Buschmann, H; Synthesis 1988, P827 CA
- (7) Corey, E; J Am Chem Soc 1975, V97, P6908 CA
- (8) Grosnick, H; J Chromatogr 1997, VA(761), P181
- (9) Gutsche, C; Calixarenes 1989
- (10) Gutsche, C; Org Synth 1989, V68, P234
- (11) Gutsche, C; Org Synth 1989, V68, P238
- (12) Jauch, J; Tetrahedron: Asymmetry 1997, V8, P169 CA
- (13) Munch, J; Org Synth 1989, V68, P243
- (14) Ort, O; Org Synth 1987, V65, P203 CA
- (15) Shinkai, S; Tetrahedron 1993, V49, P8933 CA

L1 ANSWER 2 OF 2 CA COPYRIGHT 2002 ACS

AN 128:288238 CA

TI Systematic studies of functionalized calixarenes as negative tone electron beam resist

AU Prins, F. E.; Pfeiffer, J.; Raible, S.; Kern, D. P.; Schurig, V.

CS Institut Angewandte Physik, Universitat Tubingen, Tubingen, 72076, Germany

SO Microelectron. Eng. (1998), 41/42, 359-362

CODEN: MIENEF; ISSN: 0167-9317

PB Elsevier Science B.V.

DT Journal

LA English

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

AB We present a systematic study on properties of calix[n]arenes as a high resoln. neg. tone electron beam resist. From expts. changing the ring sizes of the calix[n]arenes with n=4,6,8 as well as the functionalization of the arenes we conclude that electron beam irradn. causes the arenes to break up and link to other arenes or functionalizing groups. This is confirmed by exposing resorcin[4]arene. We demonstrate that this material also shows neg. tone high resoln. resist features, and patterns are transferred into silicon.

ST calixarene neg tone electron beam resist

IT Electron beam lithography

Electron beam resists

(systematic studies of functionalized calixarenes as neg. tone electron beam resist)

IT 60705-62-6, p-tert-Butylcalix[4]arene 68971-82-4, p-tert-Butylcalix[8]arene 78092-53-2, p-tert-Butylcalix[6]arene 96107-95-8
155401-93-7 205929-11-9

RL: PRP (Properties)

(systematic studies of functionalized calixarenes as neg. tone electron beam resist)

| | | | |
|--|-------|------------|---------|
| => FIL STNGUIDE | | SINCE FILE | TOTAL |
| COST IN U.S. DOLLARS | | ENTRY | SESSION |
| FULL ESTIMATED COST | 8.64 | | 8.79 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | | SINCE FILE | TOTAL |
| CA SUBSCRIBER PRICE | -1.18 | ENTRY | SESSION |
| | | | -1.18 |

FILE 'STNGUIDE' ENTERED AT 10:35:40 ON 23 JAN 2002
 USE IS SUBJECT TO THE TERMS OF YOUR CUSTOMER AGREEMENT
 COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY, JAPAN SCIENCE
 AND TECHNOLOGY CORPORATION, AND FACHINFORMATIONSZENTRUM KARLSRUHE

FILE CONTAINS CURRENT INFORMATION.
 LAST RELOADED: Jan 18, 2002 (20020118/UP).

| | | | |
|--|------|------------|---------|
| => file reg | | SINCE FILE | TOTAL |
| COST IN U.S. DOLLARS | | ENTRY | SESSION |
| FULL ESTIMATED COST | 0.00 | | 8.79 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | | SINCE FILE | TOTAL |
| CA SUBSCRIBER PRICE | 0.00 | ENTRY | SESSION |
| | | | -1.18 |

FILE 'REGISTRY' ENTERED AT 10:38:03 ON 23 JAN 2002
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
 COPYRIGHT (C) 2002 American Chemical Society (ACS)

STRUCTURE FILE UPDATES: 20 JAN 2002 HIGHEST RN 385365-97-9
 DICTIONARY FILE UPDATES: 22 JAN 2002 HIGHEST RN 385365-97-9

TSCA INFORMATION NOW CURRENT THROUGH July 7, 2001

Please note that search-term pricing does apply when
 conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Calculated physical property data is now available. See HELP PROPERTIES
 for more information. See STNote 27, Searching Properties in the CAS
 Registry File, for complete details:
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> s calix and arene
 240 CALIX
 271 ARENE
 L2 220 CALIX AND ARENE

| | | | |
|--|------|------------|---------|
| => file caplus | | SINCE FILE | TOTAL |
| COST IN U.S. DOLLARS | | ENTRY | SESSION |
| FULL ESTIMATED COST | 8.32 | | 17.11 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | | SINCE FILE | TOTAL |
| CA SUBSCRIBER PRICE | 0.00 | ENTRY | SESSION |
| | | | -1.18 |

FILE 'CAPLUS' ENTERED AT 10:38:37 ON 23 JAN 2002
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
 COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications.

FILE COVERS 1907 - 23 Jan 2002 VOL 136 ISS 4
FILE LAST UPDATED: 21 Jan 2002 (20020121/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

This file supports REGISTRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

CAplus now provides online access to patents and literature covered in CA from 1907 to the present. Bibliographic information and abstracts were added in 2001 for over 3.8 million records from 1907-1966.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

The CA Lexicon is now available in the Controlled Term (/CT) field. Enter HELP LEXICON for full details.

Attention, the CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

=> d his

(FILE 'HOME' ENTERED AT 10:34:31 ON 23 JAN 2002)

L1 FILE 'CA' ENTERED AT 10:34:40 ON 23 JAN 2002
2 S PFEIFFER?/AU AND CALIXARENE

FILE 'STNGUIDE' ENTERED AT 10:35:40 ON 23 JAN 2002

L2 FILE 'REGISTRY' ENTERED AT 10:38:03 ON 23 JAN 2002
220 S CALIX AND ARENE

FILE 'CAPLUS' ENTERED AT 10:38:37 ON 23 JAN 2002

=> s 12 and photo?
2000 L2
1101037 PHOTO?
L3 97 L2 AND PHOTO?

=> s 13 and (e beam or electron beam)
1581561 E
362171 BEAM
5737 E BEAM
(E(W) BEAM)
1084696 ELECTRON
362171 BEAM
109885 ELECTRON BEAM
(ELECTRON(W) BEAM)
L4 2 L3 AND (E BEAM OR ELECTRON BEAM)

=> d all 1-2

L4 ANSWER 1 OF 2 CAPLUS COPYRIGHT 2002 ACS
AN 1998:215364 CAPLUS
DN 128:288230
TI Resolution of calixarene resist under low energy electron irradiation
AU Fujita, J.; Ohnishi, Y.; Manako, S.; Ochiai, Y.; Nomura, E.; Matsui, S.
CS Fundamental Research Laboratories, NEC Corporation, Tsukuba, 305, Japan
SO Microelectron. Eng. (1998), 41/42, 323-326
CODEN: MIENEF; ISSN: 0167-9317
PB Elsevier Science B.V.
DT Journal
LA English
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
AB The resoln. and sensitivity of calixarene resists in relation to incident electron energy were studied. While the sensitivity of the resists was varied in compliance with Bethe theory for the changes of the electron energy, resoln. of the resists in terms of the min. dot size, shows almost the same value of about 10 nm for each electron energy. A Monte Carlo simulation suggests the electron dose at the edge of the dot pattern was only one hundredth of that at the center of the **electron beam**. This means the major factor in limiting the resoln. in calixarene resists was not the **electron beam** profile, but other factors such as a limit due to development processes.
ST calixarene resist low energy electron irradn; **photoresist** Monte Carlo simulation dot pattern
IT Electron beam resists
 Photoresists
 Physicochemical simulation
 (resoln. of calixarene resist under low energy electron irradn.)
IT 124006-38-8, 5,11,17,23,19,35-Hexamethyl-37,38,39,40,41,42-hexamethoxycalix-[6]arene 141137-71-5, 5,11,17,23,29,35-Hexamethyl-37,38,39,40,41,42-hexaacetoxycalix-[6]arene
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
 (resoln. of calixarene resist under low energy electron irradn.)

L4 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2002 ACS
AN 1992:601700 CAPLUS
DN 117:201700
TI Film properties and applications of hexaacetate p-methylcalix[6]arene
AU Wamme, Naoko; Ohnishi, Yoshitake
CS Fundam. Res. Lab., NEC Corp., Tsukuba, 305, Japan
SO Polym. Mater. Sci. Eng. (1992), 67, 451-2
CODEN: PMSEDG; ISSN: 0743-0515
DT Journal
LA English
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
AB A simple calixarene deriv., p-methylcalix[6]arene or 5, 11, 17, 23, 29, 35-hexamethyl-37, 38, 39, 40, 41, 42-hexaacetoxycalix[6]arene (MC6AOAc) was synthesized. This is thermally stable up to 320.degree., both chem. and mech. It shows no flow or softening. Its high heat resistivity makes it suitable for use in semiconductor processes. Films of calixarenes are made from solns. by spin coat. For example, from MC6AOAc, films with 10 to 800 nm thick are made by varying concn. and spin speed (rpm).
ST methylacetoxycalixarene resist lithog; calixarene acetate deriv neg electron resist
IT Lithography
 (hexamethyl-hexaacetoxycalix[6]arene as **electron-beam** or ion-beam sensitive material for)
IT Resists
 (hexamethyl-hexaacetoxycalix[6]arene as, synthesis and characterization of)
IT 5284-79-7
RL: USES (Uses)
 (**photoactive agent**, in **photoresist** compn. contg. hexamethyl-hexaacetoxycalix[6]arene)

IT 141137-71-5P, 5,11,17,23,29,35-Hexamethyl-37,38,39,40,41,42-hexaacetoxycalix[6]arene
RL: PREP (Preparation)
(synthesis and film properties and applications of, in electron-beam or ion-beam lithog.)

=> d his

(FILE 'HOME' ENTERED AT 10:34:31 ON 23 JAN 2002)

FILE 'CA' ENTERED AT 10:34:40 ON 23 JAN 2002

L1 2 S PFEIFFER/AU AND CALIXARENE

FILE 'STNGUIDE' ENTERED AT 10:35:40 ON 23 JAN 2002

FILE 'REGISTRY' ENTERED AT 10:38:03 ON 23 JAN 2002

L2 220 S CALIX AND ARENE

FILE 'CAPLUS' ENTERED AT 10:38:37 ON 23 JAN 2002

L3 97 S L2 AND PHOTO?

L4 2 S L3 AND (E BEAM OR ELECTRON BEAM)

=> s l2 and hydroxy

2000 L2

300596 HYDROXY

L5 110 L2 AND HYDROXY

=> s l3 and hydroxy

300596 HYDROXY

L6 3 L3 AND HYDROXY

=> s l6 not l4

L7 3 L6 NOT L4

=> d all 1-3

L7 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2002 ACS

AN 2000:522638 CAPLUS

DN 133:112454

TI Chromic compound having calix arene and spiropyran structures

IN Kawanishi, Yuji; Zhou, Jinwei

PA Agency for Industrial Science and Technology, Japan

SO Jpn. Tokkyo Koho, 7 pp.

CODEN: JTXXFF

DT Patent

LA Japanese

IC ICM C07D491-107

ICS C09K009-02

CC 74-9 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 28

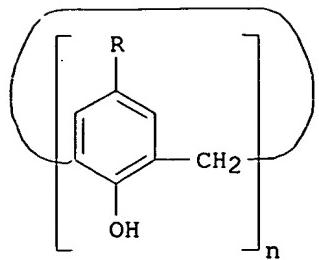
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|------|-----------------|------|
|------------|------|------|-----------------|------|

| | | | | |
|----|---------------|----|----------|---------------|
| PI | JP 3032825 | B1 | 20000417 | JP 1999-39147 |
| | JP 2000239278 | A2 | 20000905 | 19990217 |

OS MARPAT 133:112454

GI



AB The invention relates to chromic compd. I (R = alkyl; n = 4-12 integer), wherein the **hydroxy** hydrogen or/and hydrogen on the benzene ring of I is substituted with a **photochromic** or thermochromic spiropyran compd. residue. The chromic characteristics of the chromic compd. is artificially controlled.

ST chromic compd calix arene spiropyran

IT **Photochromic** materials

Thermochromic materials

(chromic compd. having calix arene and spiropyran structures)

IT Heterocyclic compounds

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(fused; chromic compd. having calix arene and spiropyran structures)

IT 282718-92-7P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(chromic compd. having calix arene and spiropyran structures)

IT 55779-26-5 154204-25-8

RL: RCT (Reactant)

(chromic compd. having calix arene and spiropyran structures)

L7 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2002 ACS

AN 1999:624949 CAPLUS

DN 132:58311

TI A non-covalent assembly for electron transfer based on a calixarene-porphyrin conjugate: tweezers for a quinone

AU Arimura, Takashi; Ide, Seiji; Sugihara, Hideki; Murata, Shigeo; Sessler, Jonathan L.

CS COE Laboratory, National Institute of Materials and Chemical Research, Tsukuba, 305-8565, Japan

SO New J. Chem. (1999), 23(10), 977-979

CODEN: NJCHE5; ISSN: 1144-0546

PB Royal Society of Chemistry

DT Journal

LA English

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 73

AB The synthesis and characterization are reported of a new supramol. assembly, a calix[4]arene-substituted Zn(II) metalloporphyrin and benzoquinone, wherein **photoinduced** electron transfer through noncovalent interactions are probed. Two phenolic **hydroxy** groups of the calix[4]arene serve as tweezers to capture the benzoquinone by two-point hydrogen-bonding fixation. While hydrogen bonding interactions bring donor and acceptor into close contact, the obsd. electron transfer process is thought to result from a through-bond (including H bonds) pathway.

ST calixarene porphyrin zinc conjugate prepn quinone interaction; hydrogen bond quinone calixarene porphyrin zinc conjugate; electron transfer calixarene porphyrin conjugate quinone assembly; fluorescence quenching calixarene porphyrin conjugate quinone assembly

IT Hydrogen bond

Photoinduced electron transfer

(non-covalent assembly for **photoinduced** electron transfer
based on calixarene-porphyrin zinc conjugate contg. hydroxyl tweezers
for quinone)

IT Metacyclophanes

RL: PEP (Physical, engineering or chemical process); SPN (Synthetic

preparation); PREP (Preparation); PROC (Process)
(non-covalent assembly for **photoinduced** electron transfer
based on calixarene-porphyrin zinc conjugate contg. hydroxyl tweezers
for quinone)

IT Fluorescence quenching
(of non-covalent assembly of calixarene-porphyrin zinc conjugate contg.
hydroxyl tweezers for quinone)

IT Metallocporphyrins
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic
preparation); PREP (Preparation); PROC (Process)
(zinc; non-covalent assembly for **photoinduced** electron
transfer based on calixarene-porphyrin zinc conjugate contg. hydroxyl
tweezers for quinone)

IT 100-52-7, Benzaldehyde, reactions 92415-30-0 162330-38-3
RL: RCT (Reactant)
(for prepn. of calixarene-porphyrin zinc conjugate)

IT 106-51-4, p-Quinone, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(hydrogen bonding with calixarene-porphyrin zinc conjugate contg.
hydroxyl tweezers as non-covalent assembly for **photoinduced**
electron transfer studies)

IT 252740-05-9P
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic
preparation); PREP (Preparation); PROC (Process)
(prepn. and fluorescence quenching of)

IT 252740-04-8P
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic
preparation); PREP (Preparation); PROC (Process)
(prepn. as non-covalent assembly with hydrogen-bonded quinone for
photoinduced electron transfer studies)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Arimura, T; J Jpn Oil Chem Soc 1999, V48, P775 CAPLUS
- (2) Beratan, D; Science 1992, V258, P1740 CAPLUS
- (3) de Rege, P; Science 1995, V269, P1409 CAPLUS
- (4) Drain, C; J Chem Soc Chem Commun 1993, P243 CAPLUS
- (5) Harriman, A; J Chem Soc Chem Commun 1991, P345 CAPLUS
- (6) Hunter, C; Angew Chem Int Ed Engl 1996, V35, P1936 CAPLUS
- (7) Hunter, C; Chem Commun 1996, P1361 CAPLUS
- (8) Hunter, C; J Chem Soc Chem Commun 1989, P1765 CAPLUS
- (9) Hynes, M; J Chem Soc Dalton Trans 1993, P311 CAPLUS
- (10) Kajiwara, A; Chem Express 1989, V4, P105 CAPLUS
- (11) Lakowicz, J; Principle of Fluorescence Spectroscopy 1986, P260
- (12) Milbradt, R; Tetrahedron Lett 1995, V36, P2999 CAPLUS
- (13) Moser, C; Nature 1992, V355, P796 CAPLUS
- (14) Pelletier, H; Science 1992, V258, P1748 CAPLUS
- (15) Roberts, J; J Am Chem Soc 1995, V117, P8051 CAPLUS
- (16) Sessler, J; Electron and Energy Transfer Reactions in Non-Covalently
Linked, Supramolecular Model Systems in Comprehensive Supermolecular
Chemistry 1996, V4, P311 CAPLUS
- (17) Stern, V; Phys Z 1919, V20, P183
- (18) Turro, N; Modern Molecular Photochemistry 1991, P246
- (19) Whitlock, B; J Am Chem Soc 1990, V112, P3910 CAPLUS
- (20) Young, R; J Am Chem Soc 1985, V107, P898 CAPLUS

L7 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS

AN 1989:76754 CAPLUS

DN 110:76754

TI Phenolic calixarenes as **photostabilizers** of polymers and organic
materials

IN Goermar, Gerhard; Seiffarth, Klaus; Bachmann, Joerg; Schulz, Manfred;
Raedler, Klaus Peter

PA VEB Leuna-Werke "Walter Ulbricht", Ger. Dem. Rep.

SO Ger. (East), 5 pp.

CODEN: GEXXA8

DT Patent

LA German

IC ICM C08K005-15

CC 37-6 (Plastics Manufacture and Processing)

PAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|---|------|----------|-----------------|----------|
| PI | DD 254739 | A1 | 19880309 | DD 1986-296981 | 19861203 |
| OS | MARPAT 110:76754 | | | | |
| AB | Phenolic calixarenes (d.p. 3-8), optionally bearing hydrocarbyl groups para to the OH group, treated with H ₂ O ₂ , hydroperoxides, or peracids, are photostabilizers for polymers. Refluxing 1 g tetra-4-tert-butyltetra-1-hydroxycalix(4)arene and 5 g tert-BuOOH in 30 mL PhCl for 24 h gave 490 mg oxidn. product (I) whose IR spectrum showed CO and OH peaks. Low-d. polyethylene contg. 0.3% I required 1150 h Xenotest exposure for the extinction coeff. of the CO band (1720 cm ⁻¹) of the IR spectrum to reach 0.1; vs. 450 without I. | | | | |
| ST | antioxidant light stabilizer polymer; calixarene oxidized stabilizer polymer; polyethylene antioxidant calixarene oxidized; peroxide oxidn calixarene; hydroperoxide oxidn calixarene; peracid oxidn calixarene | | | | |
| IT | Antioxidants
Light stabilizers
(oxidized phenolic calixarenes, for polymers) | | | | |
| IT | Hydroperoxides
RL: RCT (Reactant)
(oxidn. by, of phenolic calixarenes for photooxidn.
stabilizers for polymers) | | | | |
| IT | Polyamides, uses and miscellaneous
Polyesters, uses and miscellaneous
Polymers, uses and miscellaneous
RL: USES (Uses)
(photooxidn. stabilizers for, oxidized phenolic calixarenes
as) | | | | |
| IT | Cyclophanes
RL: USES (Uses)
(meta-, hydroxy, oxidized, photooxidn. stabilizers
for polymers) | | | | |
| IT | Alkenes, polymers
RL: USES (Uses)
(polymers, photooxidn. stabilizers for, oxidized phenolic
calixarenes as) | | | | |
| IT | 74-85-1D, Ethylene, polymers with .alpha.-olefins
RL: USES (Uses)
(linear low-d., photooxidn. stabilizers for, oxidized
phenolic calixarenes as) | | | | |
| IT | 75-91-2, tert-Butylhydroperoxide 7722-84-1, Hydrogen peroxide, reactions
RL: RCT (Reactant)
(oxidn. by, of phenolic calixarenes for photooxidn.
stabilizers for polymers) | | | | |
| IT | 9002-88-4 9003-56-9
RL: USES (Uses)
(photooxidn. stabilizers for, oxidized phenolic calixarenes
as) | | | | |
| IT | 60705-62-6D, oxidized 68971-82-4D, oxidized
78092-53-2D, oxidized
RL: USES (Uses)
(photooxidn. stabilizers, for polymers) | | | | |

=> d his

(FILE 'HOME' ENTERED AT 10:34:31 ON 23 JAN 2002)

FILE 'CA' ENTERED AT 10:34:40 ON 23 JAN 2002

L1 2 S PFEIFFER/AU AND CALIXARENE

FILE 'STNGUIDE' ENTERED AT 10:35:40 ON 23 JAN 2002

FILE 'REGISTRY' ENTERED AT 10:38:03 ON 23 JAN 2002

FILE 'CAPLUS' ENTERED AT 10:38:37 ON 23 JAN 2002

L3 97 S L2 AND PHOTO?
 L4 2 S L3 AND (E BEAM OR ELECTRON BEAM)
 L5 110 S L2 AND HYDROXY
 L6 3 S L3 AND HYDROXY
 L7 3 S L6 NOT L4

=> s 13 not 17 not 14
 L8 92 L3 NOT L7 NOT L4

=> s 18 and chem? (5a)ampli?
 2105409 CHEM?
 267070 AMPLI?
 4183 CHEM? (5A)AMPLI?
 L9 4 L8 AND CHEM? (5A)AMPLI?

=> d all 1-4

L9 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2002 ACS
 AN 1999:744383 CAPLUS
 DN 132:7560
 TI Acid-decomposable group-containing calixarenes, calixresorcinarenes, and
 photosensitive composition for resist
 IN Nishikubo, Tadaomi; Kameyama, Atsushi; Ota, Yoshihisa
 PA JSR Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 15 pp.
 CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C07C043-235

ICS C07C069-33; C07F007-18; G03F007-039

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 Section cross-reference(s): 25

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------------|------|------|-----------------|------|
|--|------------|------|------|-----------------|------|

PI JP 11322656 A2 19991124 JP 1998-146597 19980511

OS MARPAT 132:7560

GI For diagram(s), see printed CA Issue.

AB The compn. contains .gtoreq.1 calix(resorcin)arenes I (R1, R2 = H, C1-5
 alkyl; R3 = H, O2CBu-t, SiMe3, cyclohexenyl; n = 1-3; m = 4-12) and a
 photo-acid generator. The compn. is useful as pos.-working
 chem. amplified resists.

ST calixarene calixresorcinarene photosensitive compn resist; acid
 decomposable calixarene calixresorcinarene photoresist

IT Positive photoresists
 (acid-decomposable group-contg. calixarenes or calixresorcinarenes for
 photoresists)

IT Metacyclophanes
 RL: SPN (Synthetic preparation); TEM (Technical or engineered material
 use); PREP (Preparation); USES (Uses)
 (calixarenes; acid-decomposable group-contg. calixarenes or
 calixresorcinarenes for photoresists)

IT 108-46-3, 1,3-Benzenediol, reactions 123-63-7 1521-51-3,
 3-Bromocyclohexene 68971-82-4, p-tert-Butylcalix(8)arene
 250715-27-6 250715-28-7, p-Methylcalix(7)arene 250715-30-1,
 p-Methylcalix(8)arene
 RL: RCT (Reactant)
 (acid-decomposable group-contg. calixarenes or calixresorcinarenes for
 photoresists)

IT 65338-98-9P, Calix[4]resorcinarene 68971-83-5P 160399-38-2P
 250715-26-5P 250715-31-2P 250715-32-3P 250715-33-4P
 250715-34-5P 250715-35-6P 250715-36-7P 250715-37-8P 250715-39-0P
 250715-40-3P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(acid-decomposable group-contg. calixarenes or calixresorcinarenes for photoresists)

L9 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2002 ACS

AN 1999:498652 CAPLUS

DN 131:163357

TI Positive-working chemical amplification

photosensitive resin composition and resist image formation

IN Kato, Koji; Hashimoto, Masahiro; Kasuya, Kei; Hashimoto, Michiaki

PA Hitachi Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-039

ICS G03F007-033; H01L021-027

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 38

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------------|------|------|-----------------|------|
|--|------------|------|------|-----------------|------|

PI JP 11218925 A2 19990810 JP 1998-17617 19980130

OS MARPAT 131:163357

GI For diagram(s), see printed CA Issue.

AB The compn. contains (A) an alkali-sol. water-sol. resin, (B) an acid generating compd. by active chem. beam radiation, and (C) a phenol compd. I (X, Y = H, OH; R1 = C1-5 alkyl, C1-5 alkoxy; R2 = H, C1-5 alkyl, C1-5 alkoxy, Ph; R3 = H, acid-decomposable group; n = 4-8 integer). The method involves irradiating a film comprising the compn. with active chem. beam and developing. The compn. shows high solv. and excellent resoln., heat resistance, and sensitivity.

ST photoresist pos working image formation; alkali sol resin

photoresist heat resistance; chem amplification

photosensitive resin photoimaging

IT Phenolic resins, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(novolak, cresol-based; pos.-working chem.

amplification photosensitive compn. contg. phenol

cyclic compd. for image formation)

IT Photoimaging materials

Positive photoresists

(pos.-working chem. amplification

photosensitive compn. contg. phenol cyclic compd. for image formation)

IT 237394-96-6P 237394-97-7P

RL: IMF (Industrial manufacture); MOA (Modifier or additive use); TEM

(Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos.-working chem. amplification

photosensitive compn. contg. phenol cyclic compd. for image formation)

IT 27029-76-1P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(pos.-working chem. amplification

photosensitive compn. contg. phenol cyclic compd. for image formation)

IT 109-92-2

RL: RCT (Reactant)

(pos.-working chem. amplification

photosensitive compn. contg. phenol cyclic compd. for image formation)

IT 60705-62-6P 74568-07-3P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(pos.-working chem. amplification

photosensitive compn. contg. phenol cyclic compd. for image formation)

IT 87-66-1, Pyrogallol 594-44-5, Ethanesulfonyl chloride 9016-83-5, CN 19
134335-36-7, Pyrogallol ethanesulfonate
RL: TEM (Technical or engineered material use); USES (Uses)
(pos.-working chem. amplification
photosensitive compn. contg. phenol cyclic compd. for image formation)

L9 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2002 ACS
AN 1998:428006 CAPLUS
DN 129:154688

TI Positive-working chemical amplification-type
photosensitive resin compositions and manufacture of resist images using the same with high sensitivity, resolution, and heat resistance

IN Kato, Koji; Hashimoto, Masahiro; Hashimoto, Michiaki
PA Hitachi Chemical Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF

DT Patent
LA Japanese
IC ICM G03F007-039
ICS C08L061-10; G03F007-004; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----------------------|------|----------|-----------------|----------|
| PI JP 10177249 | A2 | 19980630 | JP 1997-210286 | 19970805 |
| PRAI JP 1996-275668 | | 19961018 | | |
| OS MARPAT 129:154688 | | | | |

GI For diagram(s), see printed CA Issue.

AB The title compns. comprise (A) resins sol. in aq. alkali solns.; (B) polyphenols I (R₁ = H, C₁-5 alkyl, alkoxy; R₂ = H, C₁-5 alkyl, alkoxy, phenyl; n = 4-8); (C) compds. generating acids upon active chem. beam irradn.; and (D) compds. having pendent group contg. acid-decomposable group improving solv. in aq. alkali solns. by acid catalyzed reaction.

ST pos working chem amplification photoresist pattern; polyphenol pos working chem amplification photoresist

IT Photoresists
(pos.-working chem. amplification-type
photosensitive resin compns. and manuf. of resist images using the same with high sensitivity, resoln., and heat resistance)

IT Phenolic resins, preparation
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working chem. amplification-type
photosensitive resin compns. and manuf. of resist images using the same with high sensitivity, resoln., and heat resistance)

IT 60288-40-6P, Trimethylsulfonium trifluoromethanesulfonate
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
(pos.-working chem. amplification-type
photosensitive resin compns. and manuf. of resist images using the same with high sensitivity, resoln., and heat resistance)

IT 110-87-2DP, 3,4-Dihydro-2H-pyran, reaction products with reaction products with poly(vinylphenol) 24979-70-2DP, Poly(p-vinylphenol), reaction products with dihydropyran 27029-76-1P, m-Cresol-p-cresol-formaldehyde copolymer 60705-62-6P 74568-07-3P 197861-57-7P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working chem. amplification-type
photosensitive resin compns. and manuf. of resist images using the same with high sensitivity, resoln., and heat resistance)

IT 9016-83-5, CN-19
RL: POF (Polymer in formulation); TEM (Technical or engineered material

use); USES (Uses)
(pos.-working chem. amplification-type
photosensitive resin compns. and manuf. of resist images using
the same with high sensitivity, resln., and heat resistance)
IT 50-00-0, Formaldehyde, reactions 98-54-4, p-tert-Butylphenol 106-44-5,
p-Cresol, reactions 2181-42-2, Trimethylsulfonium iodide 2923-28-6,
Silver trifluoromethanesulfonate
RL: RCT (Reactant)
(pos.-working chem. amplification-type
photosensitive resin compns. and manuf. of resist images using
the same with high sensitivity, resln., and heat resistance)

L9 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2002 ACS
AN 1998:277408 CAPLUS

DN 129:10630
TI Positive-working chemical amplification-type
photosensitive resin composition containing polyphenols and method
for manufacturing resist images

IN Kato, Koji; Hashimoto, Masahiro; Hashimoto, Michiaki

PA Hitachi Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-039

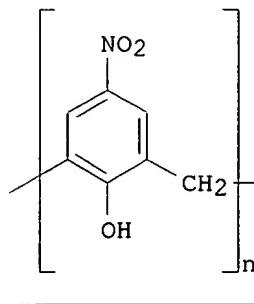
ICS G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|------------------|------|----------|-----------------|----------|
| PI | JP 10115926 | A2 | 19980506 | JP 1997-210284 | 19970805 |
| PRAI | JP 1996-221938 | | 19960823 | | |
| OS | MARPAT 129:10630 | | | | |

GI



I

AB A pos.-type chem. amplification-series
photosensitive resin compn. contains (a) a resin sol. in aq.
alkali soln., (b) polynitrophenols (calixarene) (I; n = 4-8), (c) a compd.
generating an acid upon irradn. with active chem. ray, and (d) a compd.
possessing on the side chain, a group decomposable by acid which increases
soly. in aq. alkali soln. by acid-catalyzed reaction. The content of
low-mol. wt. component having mol. wt. < 2,000 as polystyrene in the
above compn. is < 10 wt.%. Also claimed is a method for prep.
resist images, in which the coating of above resin compn. is irradiated
with active chem. ray and then developed. The compn. provides resist
patterns of good resln. and shows high sensitivity, high degree of
resln., and high heat resistance and is used for microprocessing of
semiconductor devices.

ST pos working photoresist alkali sol; semiconductor device manuf
photoresist; polyphenol photoresist chem
amplification photoresist; calixarene pos working

IT photoresist
Positive photoresists
Semiconductor devices
(pos.-working chem. amplification-type
photosensitive resin compn. contg. polyphenols and method for
manufg. resist images)

IT Metacyclophanes
Novolaks
RL: SPN (Synthetic preparation); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(pos.-working chem. amplification-type
photosensitive resin compn. contg. polyphenols and method for
manufg. resist images)

IT 50-00-0, Formaldehyde, reactions 98-54-4 24979-70-2,
Poly(p-vinylphenol)
RL: RCT (Reactant)
(pos.-working chem. amplification-type
photosensitive resin compn. contg. polyphenols and method for
manufg. resist images)

IT 60705-62-6P 68971-82-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(pos.-working chem. amplification-type
photosensitive resin compn. contg. polyphenols and method for
manufg. resist images)

IT 24979-70-2DP, Poly(p-vinylphenol), tetrahydropyranyl-substituted
27029-76-1P, m-Cresol-p-cresol-formalin copolymer 60288-40-6P,
Trimethylsulfonium trifluoromethanesulfonate 109051-62-9P
109081-46-1P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(pos.-working chem. amplification-type
photosensitive resin compn. contg. polyphenols and method for
manufg. resist images)

IT 9016-83-5, CN 19
RL: TEM (Technical or engineered material use); USES (Uses)
(pos.-working chem. amplification-type
photosensitive resin compn. contg. polyphenols and method for
manufg. resist images)

=> d his

(FILE 'HOME' ENTERED AT 10:34:31 ON 23 JAN 2002)

FILE 'CA' ENTERED AT 10:34:40 ON 23 JAN 2002

L1 2 S PFEIFFER?/AU AND CALIXARENE

FILE 'STNGUIDE' ENTERED AT 10:35:40 ON 23 JAN 2002

FILE 'REGISTRY' ENTERED AT 10:38:03 ON 23 JAN 2002

L2 220 S CALIX AND ARENE

FILE 'CAPLUS' ENTERED AT 10:38:37 ON 23 JAN 2002

L3 97 S L2 AND PHOTO?

L4 2 S L3 AND (E BEAM OR ELECTRON BEAM)

L5 110 S L2 AND HYDROXY

L6 3 S L3 AND HYDROXY

L7 3 S L6 NOT L4

L8 92 S L3 NOT L7 NOT L4

L9 4 S L8 AND CHEM? (5A)AMPLI?

=> s 18 not 19

L10 88 L8 NOT L9

=> s 110 and glycoluril

355 GLYCOLURIL

L11 0 L10 AND GLYCOLURIL

=> s l10 and crosslink?
206894 CROSSLINK?
L12 3 L10 AND CROSSLINK?

=> d all 1-3

L12 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2002 ACS
AN 2001:663120 CAPLUS
DN 136:6399
TI Synthesis and **photochemical** reaction of high performance UV curing oligomers
AU Nishikubo, Tadatomi; Kameyama, Atsushi
CS Department of Applied Chemistry, Faculty of Engineering, Kanagawa University, Kanagawa-ku, Yokohama, 221-8686, Japan
SO Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2001), 42(2), 722-723
CODEN: ACPPAY; ISSN: 0032-3934
PB American Chemical Society, Division of Polymer Chemistry
DT Journal; (computer optical disk)
LA English
CC 35-4 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 37
AB Calixarene derivs. contg. (meth)acrylate, vinyl ether, propargyl ether, oxetane, oxirane, or spiro ortho ester groups were synthesized by reaction of calixarenes with (meth)acrylic acid derivs., vinyl ether compds., propargyl bromide, oxetane derivs., epibromohydrin, and spiro ortho ester derivs. The calixarene derivs. contg. **photoreactive** groups had excellent thermal stability and high **photochem.** reactivity. The calixarene derivs. are of interest for UV curing systems, e.g., inks, coatings, solder masks, adhesives, and microelectronics uses.
ST calixarene acrylate prepn **photochem** reactivity UV curing; vinyl oxetane oxirane calixarene prepн **photopolymn**; cationic **photopolymn** reactivity spiro orthoester calixarene
IT Metacyclophanes
RL: CAT (Catalyst use); USES (Uses)
(meth(acrylate), vinyl ether, propargyl ether, oxetane, oxirane; prepн. and **photochem.** reaction of calixarene oligomers contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)
IT Crosslinking
(**photochem.**; prepн. and **photochem.** reaction of calixarene oligomers contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)
IT Thermal stability
(prepн. and **photochem.** reaction of calixarene oligomers contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)
IT 221550-29-4P 245416-15-3P 245416-16-4P 245416-17-5P 245416-18-6P
245416-19-7P 245416-20-0P 375387-44-3P
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(monomer; prepн. and **photochem.** reaction of calixarene oligomers contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)
IT 1643-19-2, Tetrabutylammonium bromide
RL: CAT (Catalyst use); USES (Uses)
(phase-transfer catalyst; prepн. and **photochem.** reaction of calixarene oligomers contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)
IT 68015-88-3, 4-Morpholino-2,5-dibutoxybenzenediazonium hexafluorophosphate
74227-35-3, Bis[4-(diphenylsulfonio)phenyl] sulfide
bis(hexafluorophosphate)
RL: CAT (Catalyst use); USES (Uses)
(**photopolymn.** catalyst; prepн. and **photochem.** reaction of calixarene oligomers contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)

IT 176256-16-9P 233775-58-1P 233775-59-2P 233775-60-5P 233775-63-8P
243853-44-3P 343784-07-6P 343784-08-7P 375387-45-4P 375387-46-5P
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(prepn. and photochem. reaction of calixarene oligomers
contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)

IT 106-91-2, Glycidyl methacrylate 106-95-6, Allyl bromide, reactions
106-96-7, Propargyl bromide 110-75-8, 2-Chloroethyl vinyl ether
814-68-6, Acryloyl chloride 920-46-7, Methacryloyl chloride 3132-64-7,
Epibromohydrin 3678-15-7, Glycidyl vinyl ether 30674-80-7,
(2-Methacryloxy)ethyl isocyanate 65338-98-9 68971-82-4
78092-53-2, p-tert-Butylcalix[6]arene 79942-31-7,
p-Methylcalix[6]arene 99314-44-0, (3-Methyl-3-oxetanylmethoxy) tosylate
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. and photochem. reaction of calixarene oligomers
contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Arimura, T; J Syn Org Chem Jpn 1989, V47, P523 CAPLUS
- (2) Fujita, J; Appl Phys Lett 1996, V68, P1297 CAPLUS
- (3) Gutsche, C; Calixarenes 1989
- (4) Holman, R; UV and EB Curing Formulation for Printing Inks, Coatings and Paints 1988
- (5) Iyo, M; J Polym Sci Part A Polym Chem 1999, V37, P3071 CAPLUS
- (6) Nishikubo, T; J Polym Sci Part A Polym Chem 1999, V37, P1805 CAPLUS
- (7) Nishikubo, T; J Polym Sci Part A Polym Chem in press
- (8) Nishikubo, T; Synthesis and Application of Photosensitive Polymers 1979
- (9) Tabata, Y; Technology & Application of UV/EB Curing 1997
- (10) Tabata, Y; Ultraviolet and Electron Beam Curable Materials 1989
- (11) Tsutui, K; Preprints of the 76th Annual Meeting of Chemical Society 1999, VII, P1319

L12 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2002 ACS

AN 1994:469532 CAPLUS

DN 121:69532

TI Positive-working radiation-sensitive resist composition

IN Kajita, Tooru; Oota, Toshuki; Miura, Takao

PA Japan Synthetic Rubber Co Ltd, Japan

SO Jpn. Kokai Tokkyo Koho, 21 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-039

ICS G03F007-004; G03F007-028; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|------|-----------------|------|
|------------|------|------|-----------------|------|

PI JP 05173333 A2 19930713 JP 1991-354297 19911220

AB The title compn. comprises (1) an alkali-sol. resin, (2) a compd. which will generate an acid on irradn. with a radiation, (3) an inclusion compd., and optionally (4) an agent capable of controlling solv. of (1) in an alkali soln. or an agent capable of crosslinking the alkali-sol. resin in the presence of an acid. This compn. shows high resolving power, good heat resistance, etc.

ST resist compn inclusion compd

IT Semiconductor devices
(fabrication of, radiation-sensitive resist compn. for)

IT Resists
(radiation-sensitive, compn. for, contg. inclusion compd.)

IT 1180-60-5 7585-39-9, .beta.-Cyclodextrin 10016-20-3,
.alpha.-Cyclodextrin 17465-86-0, .gamma.-Cyclodextrin 65338-98-9

78092-53-2

RL: TEM (Technical or engineered material use); USES (Uses)

(photoresist compn. contg.)
IT 95418-60-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and hydrolysis of, for photoresist compn.)
IT 24979-70-2P, p-Hydroxystyrene homopolymer
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and reaction of, for photoresist compn.)
IT 24979-70-2DP, p-Hydroxystyrene homopolymer, trimethylsilylated or
tetrahydroxypyranylated 25053-88-7DP, p-Cresol-formaldehyde copolymer,
tetrahydroxypyranylated 25053-88-7P, p-Cresol-formaldehyde copolymer
25085-75-0P, Bisphenol A-formaldehyde copolymer 147625-42-1P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and use of, for photoresist compn.)

L12 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS

AN 1993:49297 CAPLUS

DN 118:49297

TI Negtive-working photosensitive composition and patterning
method therewith

IN Onishi, Yoshitake; Mita, Naoko

PA NEC Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 2 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-038

ICS G03F007-004; G03F007-008; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reprographic Processes)

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|-------------|------|----------|-----------------|----------|
| PI | JP 04155342 | A2 | 19920528 | JP 1990-280419 | 19901018 |
| | JP 2893923 | B2 | 19990524 | | |

AB The title compn. is prepd. by dissolving a calixarene and(or) its deriv.,
and a crosslinking agent in a solvent. The title method
comprises (1) coating a substrate with the above compn., and removing the
solvent to form a film; (2) selectively exposing the film to light or a
high energy beam; and (3) removing the unexposed regions with a solvent.

ST neg working photoresist calixarene lithog

IT Semiconductor devices

(fabrication of, photoresist for, calixarenes using)

IT Lithography

(patterning method for,)

IT Cyclophanes

RL: USES (Uses)

(meta-, neg.-working photoresist from)

IT Resists

(photo-, neg.-working, calixarenes using)

IT 20237-98-3D, derivs.

RL: MOA (Modifier or additive use); USES (Uses)

(crosslinking agent, neg.-working photoresist from)

IT 78092-53-2D, acetylated 79942-31-7D, acetylated

96627-08-6D, acetylated

RL: USES (Uses)

(neg.-working photoresist from)

=> d his

(FILE 'HOME' ENTERED AT 10:34:31 ON 23 JAN 2002)

FILE 'CA' ENTERED AT 10:34:40 ON 23 JAN 2002

L1 2 S PFEIFFER?/AU AND CALIXARENE

FILE 'STNGUIDE' ENTERED AT 10:35:40 ON 23 JAN 2002

FILE 'REGISTRY' ENTERED AT 10:38:03 ON 23 JAN 2002
L2 220 S CALIX AND ARENE

FILE 'CAPLUS' ENTERED AT 10:38:37 ON 23 JAN 2002

L3 97 S L2 AND PHOTO?
L4 2 S L3 AND (E BEAM OR ELECTRON BEAM)
L5 110 S L2 AND HYDROXY
L6 3 S L3 AND HYDROXY
L7 3 S L6 NOT L4
L8 92 S L3 NOT L7 NOT L4
L9 4 S L8 AND CHEM? (5A)AMPLI?
L10 88 S L8 NOT L9
L11 0 S L10 AND GLYCOLURIL
L12 3 S L10 AND CROSSLINK?

=> s l10 not l12
L13 85 L10 NOT L12

=> s l13 and photoresist?
31931 PHOTORESIST?
L14 4 L13 AND PHOTORESIST?

=> d all 1-4

L14 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2002 ACS
AN 2000:837039 CAPLUS
DN 134:23509
TI Method for pattern formation using calix[7]arene for semiconductor substrate
IN Shinko, Sachiko; Ochiai, Yukinori; Yamamoto, Hiromasa; Tejima, Takahiro
PA NEC Corp., Japan; Tokuyama Corp.
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM G03F007-038
ICS H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 76

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|---|------|----------|-----------------|----------|
| PI | JP 2000330281 | A2 | 20001130 | JP 1999-144369 | 19990525 |
| AB | The title method includes the steps of: (1) forming a thin layer on a substrate using a coating soln. mainly made of calix[7]arene; (2) forming a latent image on the thin layer using a high energy beam; and (3) selectively etching-off the thin layer except the latent image part to form a pattern. The method using calix[7]arene provides a pattern of the reduced pattern roughness. | | | | |
| ST | pattern formation resist semiconductor substrate calixarene | | | | |
| IT | Metacyclophanes
RL: TEM (Technical or engineered material use); USES (Uses)
(calixarenes; light sensitive compn. for semiconductor substrate prodn.) | | | | |
| IT | Photoresists
Semiconductor device fabrication
(method for pattern formation for semiconductor substrate) | | | | |
| IT | 50-00-0, Formaldehyde, reactions 106-44-5, p-Cresol, reactions 108-24-7, Acetic anhydride
RL: RCT (Reactant)
(calixarene in light-sensitive resist compn.) | | | | |
| IT | 141137-71-5P, p-Methylhexaacetoxycalix[6]arene
196408-88-5P, p-Methylheptaacetoxycalix[7]arene
196408-89-6P, p-Methyloctaacetoxycalix[8]arene
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) | | | | |

(calixarene in light-sensitive resist compn.)

L14 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2002 ACS
AN 1998:289591 CAPLUS
DN 129:28940
TI Amorphous calixarene compositions and formation of crack-free coat films from the compositions
IN Onishi, Yoshitake
PA NEC Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C07C043-23
ICS B29C041-12; C07C069-33; C08J005-18; B29K055-00; B29L007-00
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 42
FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-------------|------|----------|-----------------|----------|
| JP 10120610 | A2 | 19980512 | JP 1996-278191 | 19961021 |
| JP 2798072 | B2 | 19980917 | | |

AB Title compns. useful for elec. insulative and resist application comprise 1-80% amorphous calixarenes and balance amt. of cryst. calixarenes to 100%. A compn. contg. the amorphous calixarenes in an org. solvent can give a coat film with freedom from cracking. Thus, a soln. comprising chlorobenzene 90, 1,3-dimethoxy-4-(tert-butyl)calix[4]arene 10, and acetylated methylcalix[6]arene 2 parts was spin-coated on a Si substrate and dried in N at 200.degree. for 20 min to give title film showing no cracks or no crystn.
ST amorphous cryst calixarene coating compn; crack prevention calixarene soln coating; dimethoxybutylcalixarene methylcalixarene compn coating
IT Electric insulators
Photoresists
(amorphous calixarene compns. and formation of crack-free coat films from them)
IT Phenolic resins, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(oligomeric cyclic; amorphous calixarene compns. and formation of crack-free coat films from them)
IT 122406-45-5, 5,11,17,23-Tetra-tert-butyl-25,27-dimethoxy-26,28-dihydroxycalix[4]arene
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(amorphous calixarene compns. and formation of crack-free coat films from them)
IT 141137-71-5
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(amorphous calixarene compns. for forming crack-free coating film on substrate)

L14 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2002 ACS
AN 1994:334992 CAPLUS
DN 120:334992
TI Photosensitive resin composition and resist image formation
IN Kato, Koji; Kasuya, Kei; Isobe, Asao
PA Hitachi Chemical Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM G03F007-022
ICS G03F007-023; G03F007-30; H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 76

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|---|------|----------|-----------------|----------|
| PI | JP 05346664 | A2 | 19931227 | JP 1992-154911 | 19920615 |
| GI | For diagram(s), see printed CA Issue. | | | | |
| AB | The compn. comprises alkali-sol. novolak resin contg. 0-10 wt.% low mol. wt. compn. with mol. wt. > 2000 (as polystyrene), a quinonediazide compd., and phenolic cyclic compd. I ($n = 4-8$). The compn. is coated, exposed, and developed to form images. The compn. shows high sensitivity, resln., thermal-resistance, and suitable for pos.-working resist for integrated circuits. | | | | |
| ST | resist cyclic phenol compd; quinonediazide novolak resin resist | | | | |
| IT | Phenolic resins, uses
RL: USES (Uses)
(novolak, pos.-working photoresist contg.) | | | | |
| IT | Resists
(photo-, contg. novolak resin and quinonediazide compd. and cyclic phenol deriv.) | | | | |
| IT | 27029-76-1, m-Cresol-p-cresol-formaldehyde copolymer | | | 100346-90-5, | |
| | m-Cresol-p-cresol-formaldehyde-2,5-xylenol copolymer | | | 112504-03-7, | |
| | m-Cresol-p-cresol-formaldehyde-3,5-xylenol copolymer | | | | |
| | RL: USES (Uses) | | | | |
| | (pos.-working photoresist contg.) | | | | |
| IT | 60705-62-6P 68971-82-4P | | | | |
| | RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and nitration of) | | | | |
| IT | 109051-62-9P 109081-46-1P | | | | |
| | RL: PREP (Preparation)
(prepn. of, pos.-working photoresist contg.) | | | | |
| IT | 98-54-4, p-tert-Butylphenol | | | | |
| | RL: RCT (Reactant) | | | | |
| | (reaction of, with formaldehyde) | | | | |
| IT | 50-00-0, Formaldehyde, reactions | | | | |
| | RL: RCT (Reactant) | | | | |
| | (reaction of, with tert-butylphenol) | | | | |

L14 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2002 ACS

AN 1994:120770 CAPLUS

DN 120:120770

TI Photosensitive resin compositions and manufacture of resist patterns

IN Kato, Koji; Kasuya, Kei; Hashimoto, Michiaki

PA Hitachi Chemical Co Ltd, Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-023

ICS H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 76

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|--|------|----------|-----------------|----------|
| PI | JP 05113662 | A2 | 19930507 | JP 1991-273944 | 19911022 |
| OS | MARPAT 120:120770 | | | | |
| GI | For diagram(s), see printed CA Issue. | | | | |
| AB | The title compns. contain an alkali-sol. novolak resin of which 30-100 wt.% of the low-mol.-wt. components with a mol. wt. (converted with polystyrene) > 2000 are removed, a quinonediazide compd., and a phenolic cyclic compd. I ($R_1 = H, \text{alkyl, alkoxy}$; $R_2 = H, \text{alkyl, alkoxy, Ph}$; $n = 4-8$) and the coatings from the compns. are exposed and developed to give resist patterns. The compns. show good photosensitivity, high resln., and improved thermal resistance and are useful as pos.-working resists for making integrated circuits. A resist prep'd. by | | | | |

using m-cresol-p-cresol HCHO copolymer (low-mol.-wt. components 3 wt.%), I
(R1-2 = H; n = 4), and 2,4,7-trihydroxy-2,4,4-trimethylflavane
1,2-naphthouinonediazido-5-sulfonate gave a submicron resist pattern.
ST quinonediazide novolak resin **photoresist**; phenol cyclic compd
photoresist
IT Phenolic resins, uses
RL: USES (Uses)
(**photoresists** contg.)
IT Resists
(photo-, contg. quinonediazide compds., cyclic phenol
compds., and novolak resins)
IT 27029-76-1, m-Cresol-p-cresol-formaldehyde copolymer 100346-90-5,
m-Cresol-p-cresol-formaldehyde-2,5-xylenol copolymer 112504-03-7,
m-Cresol-p-cresol-formaldehyde-3,5-xylenol copolymer 140698-96-0
142541-99-9
RL: USES (Uses)
(**photoresists** contg.)
IT 151409-34-6P **151409-35-7P**
RL: PREP (Preparation)
(prepn. of, for **photoresists**)
IT 98-54-4 106-44-5, p-Cresol, reactions
RL: RCT (Reactant)
(reaction of, with formaldehyde)
IT 50-00-0, Formaldehyde, reactions
RL: RCT (Reactant)
(reaction of, with phenolic compds.)

=> d his

(FILE 'HOME' ENTERED AT 10:34:31 ON 23 JAN 2002)

FILE 'CA' ENTERED AT 10:34:40 ON 23 JAN 2002
L1 2 S PFEIFFER?/AU AND CALIXARENE

FILE 'STNGUIDE' ENTERED AT 10:35:40 ON 23 JAN 2002

FILE 'REGISTRY' ENTERED AT 10:38:03 ON 23 JAN 2002
L2 220 S CALIX AND ARENE

FILE 'CAPLUS' ENTERED AT 10:38:37 ON 23 JAN 2002

L3 97 S L2 AND PHOTO?

L4 2 S L3 AND (E BEAM OR ELECTRON BEAM)

L5 110 S L2 AND HYDROXY

L6 3 S L3 AND HYDROXY

L7 3 S L6 NOT L4

L8 92 S L3 NOT L7 NOT L4

L9 4 S L8 AND CHEM? (5A)AMPLI?

L10 88 S L8 NOT L9

L11 0 S L10 AND GLYCOLURIL

L12 3 S L10 AND CROSSLINK?

L13 85 S L10 NOT L12

L14 4 S L13 AND PHOTORESIST?

=> s l13 not l14
L15 81 L13 NOT L14

=> s l15 and lithograph?
31738 LITHOGRAPH?
L16 0 L15 AND LITHOGRAPH?

=> s l15 and photocur?
25706 PHOTOCUR?
L17 1 L15 AND PHOTOCUR?

=> d all

L17 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2002 ACS
 AN 2000:653730 CAPLUS
 DN 133:238532
 TI Calixarene derivatives and low-mold-shrinkage curable resin compositions containing them
 IN Nishikubo, Tadaomi; Kameyama, Atsushi; Ando, Yoshinori
 PA Kuraray Co., Ltd., Japan; Kanagawa University
 SO Jpn. Kokai Tokkyo Koho, 11 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM C07D493-10
 ICS C08G004-00; C08G008-36; C08G065-16; C08G085-00
 CC 35-7 (Chemistry of Synthetic High Polymers)
 FAN.CNT 1

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---------------|------|----------|-----------------|----------|
| JP 2000256362 | A2 | 20000919 | JP 1999-61087 | 19990309 |

PI OS MARPAT 133:238532
 AB The title derivs. are calixarenes bearing spiro-orthoester groups. Thus, mixing 0.34 g calix[4]resorcinarene with 1.96 g cesium carbonate in 3 mL N-methyl-2-pyrrolidone at room temp. for 5 h, adding 0.08 g tetrabutylammonium bromide and 1.15 g Me bromoacetate, mixing at 70.degree. for 48 h and working up gave 2,8,14,20-tetramethyl-4,6,10,12,16,18,22,24-octakis[(methoxycarbonyl)methoxy]calix[4]resorcinarene which was hydrolyzed, heated with 1,8-diazabicyclo[5.4.0]-7-undecene in N-methyl-2-pyrrolidone at 60.degree. for 12 h and derivatized with 2-bromomethyl-1,4,6-trioxaspiro[4.4]nonane to give a title deriv.
 ST spiro orthoester deriv calixarene manuf; resorcinarene calixarene compd manuf
 IT Metacyclophanes
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (calixarenes; calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)
 IT 294182-92-6P 294182-93-7P 294182-94-8P
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)
 IT 96-32-2, Methyl bromoacetate
 RL: MOA (Modifier or additive use); USES (Uses)
 (carboxylating agent; calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)
 IT 84298-07-7
 RL: MOA (Modifier or additive use); USES (Uses)
 (derivatization agent; calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)
 IT 97600-42-5P 116851-59-3P 130508-38-2P 203063-80-3P 294182-90-4P
 294182-91-5P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation)
 (intermediate; calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)
 IT 294182-95-9P 294182-96-0P 294182-97-1P
 RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (photocurable resins; calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)
 IT 65338-98-9 68971-82-4, p-tert-Butylcalix[8]arene
 79942-31-7, p-Methylcalix[6]arene
 RL: RCT (Reactant)
 (starting material; calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)

=> d his

(FILE 'HOME' ENTERED AT 10:34:31 ON 23 JAN 2002)

FILE 'CA' ENTERED AT 10:34:40 ON 23 JAN 2002
L1 2 S PFEIFFER?/AU AND CALIXARENE

FILE 'STNGUIDE' ENTERED AT 10:35:40 ON 23 JAN 2002

FILE 'REGISTRY' ENTERED AT 10:38:03 ON 23 JAN 2002
L2 220 S CALIX AND ARENE

FILE 'CAPLUS' ENTERED AT 10:38:37 ON 23 JAN 2002

L3 97 S L2 AND PHOTO?
L4 2 S L3 AND (E BEAM OR ELECTRON BEAM)
L5 110 S L2 AND HYDROXY
L6 3 S L3 AND HYDROXY
L7 3 S L6 NOT L4
L8 92 S L3 NOT L7 NOT L4
L9 4 S L8 AND CHEM? (5A)AMPLI?
L10 88 S L8 NOT L9
L11 0 S L10 AND GLYCOLURIL
L12 3 S L10 AND CROSSLINK?
L13 85 S L10 NOT L12
L14 4 S L13 AND PHOTORESIST?
L15 81 S L13 NOT L14
L16 0 S L15 AND LITHOGRAPH?
L17 1 S L15 AND PHOTOCUR?

=> s l6 not l17

L18 3 L6 NOT L17

=> s l18 and photoacid

1668 PHOTOACID

L19 0 L18 AND PHOTOACID

=> s l18 and acid?

3925768 ACID?

L20 0 L18 AND ACID?

=> s l18 and resist

40526 RESIST

L21 0 L18 AND RESIST

=> d ti l18 1-5

L18 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2002 ACS

TI Chromic compound having calix arene and spiropyran structures

L18 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2002 ACS

TI A non-covalent assembly for electron transfer based on a calixarene-porphyrin conjugate: tweezers for a quinone

L18 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS

TI Phenolic calixarenes as **photostabilizers** of polymers and organic materials

=> s l16 not l17

L22 0 L16 NOT L17

=> s l15 not l17

L23 80 L15 NOT L17

=> s l23 and photoacid

1668 PHOTOACID

L24 3 L23 AND PHOTOACID

=> d all 1-3

L24 ANSWER 1 OF 3 CAPLUS COPYRIGHT 2002 ACS

AN 2001:272887 CAPLUS
DN 135:61583
TI Synthesis and photoinduced deprotection of calixarene derivatives containing certain protective groups
AU Nishikubo, Tadatomi; Kameyama, Atsushi; Tsutsui, Kousuke; Kishimoto, Shinichi
CS Department of Applied Chemistry, Faculty of Engineering, Kanagawa University, Yokohama, 221-8686, Japan
SO Journal of Polymer Science, Part A: Polymer Chemistry (2001), 39(9), 1481-1494
CODEN: JPACCEC; ISSN: 0887-624X
PB John Wiley & Sons, Inc.
DT Journal
LA English
CC 35-2 (Chemistry of Synthetic High Polymers)
AB Calixarene derivs. 1, 2, and 3 contg. pendant tert-butoxycarbonyl (t-BOC) groups were synthesized in 81, 93, and 83% yield, resp., by the reaction of C-methylcalix[4]resorcinarene (CRA), p-methylcalix[6]arene (MCA), and p-tert-butylcalix[8]arene (BCA) with di-tert-Bu dicarbonate using triethylamine as a base in pyridine. Calixarene derivs. contg. pendant trimethylsilyl ether (TMSE) groups were obtained in 58, 50, and 82% yields, resp., by the reaction of CRA, MCA, and BCA with 1,1,1,3,3,3-hexamethyldisilazane using chlorotrimethylsilane as an accelerator in THF. Calixarene derivs. contg. pendant cyclohexenyl ether (CHE) groups were also prep'd. in 65, 78, and 84% yields, resp., by the reaction of CRA, MCA, and BCA with 3-bromocyclohexene using KOH as base and tetrabutylammonium bromide as phase-transfer catalyst in N-methyl-2-pyrrolidone. The **photoinduced** deprotection of calixarene derivs. 1-3 was examd. with bis-[4-(diphenylsulfonio)phenyl]sulfide bis(hexafluorophosphate) as a **photoacid** generator on UV irradn. followed by heating in the film state, and the deprotection of the t-BOC groups of proceeded smoothly in high conversion. The deprotection rate of the t-BOC groups of 2 and 3 was much lower than that of 1 under the same irradn. conditions. The **photoinduced** deprotection of calixarenes contg. tetramethylsilane groups and CHE groups was also examd. under similar reaction conditions; the deprotection rate of the substituted compds. was lower than that of 1-3 calixarenes.
ST calixarene butoxycarbonyl prepn **photoinduced** deprotection diphenylsulfoniophenylsulfide fluorophosphate; trimethylsilyl ether calixarene prepn **photoinduced** deprotection rate; cyclohexenyl ether calixarene prepn **photoinduced** deprotection rate
IT Protective groups
(**photoinduced** deprotection; synthesis and
photoinduced deprotection of calixarene derivs. contg. t-BOC and trimethylsilyl ether cyclohexenyl ether protective groups)
IT Photolysis
Photolysis kinetics
(synthesis and **photoinduced** deprotection of calixarene derivs. contg. t-BOC and trimethylsilyl ether cyclohexenyl ether protective groups)
IT 74227-35-3, Bis-[4-(diphenylsulfonio)phenyl]sulfide bis(hexafluorophosphate)
RL: NUU (Other use, unclassified); USES (Uses)
(deprotection reagent; synthesis and **photoinduced** deprotection of calixarene derivs. contg. t-BOC and trimethylsilyl ether cyclohexenyl ether protective groups)
IT 1643-19-2, Tetra-n-butylammonium bromide
RL: CAT (Catalyst use); USES (Uses)
(phase-transfer catalyst; synthesis and **photoinduced** deprotection of calixarene derivs. contg. t-BOC and trimethylsilyl ether cyclohexenyl ether protective groups)
IT 75-77-4, Chlorotrimethylsilane, reactions 1521-51-3, 3-Bromocyclohexene 24424-99-5, Di-tert-butyl dicarbonate 65338-98-9, C-Methylcalix[4]resorcinarene 68971-82-4, p-tert-Butylcalix[8]arene 79942-31-7, p-Methylcalix[6]arene
RL: RCT (Reactant)

(synthesis and **photoinduced** deprotection of calixarene
derivs. contg. t-BOC and trimethylsilyl ether cyclohexenyl ether
protective groups)

IT 68971-83-5P, 5,11,17,23,29,35,41,47-Octa-tert-butyl-
49,50,51,52,53,54,55,56-octakis[(trimethylsilyl)oxy]calix[8]arene
160399-38-2P, 2,8,14,20-Tetramethyl-4,6,10,12,16,18,22,24-
octakis[(trimethylsilyl)oxy]calix[4]resorcinarene 250715-26-5P,
5,11,17,23,29,35,41,47-Octa-tert-butyl-49,50,51,52,53,54,55,56-
octakis[(tert-butoxycarbonyl)oxy]calix[8]arene 250715-27-6P,
5,11,17,23,29,35-Hexamethyl-37,38,39,40,41,42-hexakis[(tert-
butoxycarbonyl)oxy]calix[6]arene 250715-31-2P, 2,8,14,20-Tetramethyl-
4,6,10,12,16,18,22,24-octakis[(tert-butoxycarbonyl)-
oxy]calix[4]resorcinarene 250715-32-3P, 5,11,17,23,29,35-
Hexamethyl-37,38,39,40,41,42-hexakis[(trimethylsilyl)-oxy]calix[6]arene
250715-35-6P, 5,11,17,23,29,35,41,47-Octa-tert-butyl-
49,50,51,52,53,54,55,56-octakis[(3-cyclohexenyl)oxy]calix[8]arene
250715-36-7P, 5,11,17,23,29,35-Hexamethyl-37,38,39,40,41,42-hexakis[(3-
cyclohexenyl)oxy]calix[6]arene 346406-91-5P, 2,8,14,20-Tetramethyl-
4,6,10,12,16,18,22,24-octakis[(3-cyclohexenyl)oxy]calix[4]resorcinarene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(synthesis and **photoinduced** deprotection of calixarene
derivs. contg. t-BOC and trimethylsilyl ether cyclohexenyl ether
protective groups)

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Arimura, T; J Synth Org Chem Jpn 1989, V47, P523 CAPLUS
- (2) Conlon, D; J Macromolecules 1989, V22, P509 CAPLUS
- (3) Frechet, J; ACS Symposium Series 381 1989, P155 CAPLUS
- (4) Fujita, J; Appl Phys Lett 1996, V68, P1297 CAPLUS
- (5) Gutsche, C; Calixarenes 1989
- (6) Hogberg, A; J Org Chem 1980, V45, P4498
- (7) Iyo, M; J Polym Sci Part A: Polym Chem 1999, V37, P3071 CAPLUS
- (8) Lhotak, P; J Synth Org Chem Jpn 1995, V53, P523
- (9) Mandolini, L; Calixarene in Action 1999
- (10) Nakayama, R; Polym Prepr Jpn 1998, V47, P417
- (11) Nakayama, T; Bull Chem Soc Jpn 1998, V71, P2979 CAPLUS
- (12) Nakayama, T; Chem Lett 1997, P265 CAPLUS
- (13) Nishikubo, T; J Polym Sci Part A: Polym Chem 1999, V37, P1805 CAPLUS
- (14) Nishikubo, T; J Polym Sci Part A: Polym Chem, in press
- (15) Ochiai, Y; J Photopolym Sci Technol 2000, V13, P413 CAPLUS
- (16) Takeshi, K; Chem Lett 1998, P865 CAPLUS
- (17) Takeshita, M; Bull Chem Soc Jpn 1995, V68, P1088 CAPLUS
- (18) Tsutsui, K; Polym Prepr Jpn 1998, V47, P417
- (19) Ueda, M; Chem Mater 1998, V10, P2230 CAPLUS
- (20) Willson, C; J Electrochem Soc 1986, V133, P181 CAPLUS
- (21) Yamaoka, T; Polym Eng Sci 1989, V29, P856 CAPLUS

L24 ANSWER 2 OF 3 CAPLUS COPYRIGHT 2002 ACS

AN 2001:227550 CAPLUS

DN 135:33719

TI Synthesis of **photoreactive** calixarene derivatives containing
pendant cyclic ether groups

AU Nishikubo, Tadatomi; Kameyama, Atsushi; Tsutsui, Kousuke

CS Department of Applied Chemistry, Faculty of Engineering, Kanagawa
University, Yokohama, 221-8686, Japan

SO Journal of Polymer Science, Part A: Polymer Chemistry (2001), 39(8),
1169-1179

PB CODEN: JPACEC; ISSN: 0887-624X

PB John Wiley & Sons, Inc.

DT Journal

LA English

CC 35-7 (Chemistry of Synthetic High Polymers)

AB New **photoreactive** calixarene derivs. contg. cationically
polymerizable pendant oxetane groups were synthesized in good yields by
the substitution reaction of C-methylcalix[4]resorcinarene (CRA),
p-methylcalix[6]arene (MCA), and p-tert-butylcalix[8]arene (BCA) with
(3-methyloxetan-3-yl)methyl 4-toluenesulfonate and (3-ethyloxetan-3-

yl)methyl 4-toluenesulfonate with potassium hydroxide as a base and tetrabutylammonium bromide as a phase transfer catalyst in N-methyl-2-pyrrolidone, resp. Calixarene derivs. contg. cationically polymerizable pendant oxirane groups were also prep'd. in good yields by the substitution reaction of CRA, MCA, and BCA with epibromohydrin, resp., with cesium carbonate as a base in N-methyl-2-pyrrolidone. The thermal stability of the obtained calixarene derivs. contg. pendant oxetane groups or oxirane groups was examd. with thermogravimetric anal., and it was found that these calixarene derivs. had thermal stability beyond 340 .degree.C. The **photochem.** reaction of calixarenes contg.

pendant oxetane groups was examd. with certain **photoacid** generators in the film state. In this reaction system, calixarene 1a, composed of a CRA structure and pendant (3-methyloxetan-3-yl)methyl groups, showed the highest **photochem.** reactivity when bis-[4-(diphenylsulfonio)phenyl]sulfide bis(hexafluorophosphate) was used as the catalyst. The **photochem.** reaction of calixarenes contg. pendant oxirane groups was also examd., and it was found that the **photoinitiated** cationic polymn. of these calixarenes proceeded smoothly under the same conditions; however, the reaction rates were lower than those of the corresponding calixarenes contg. pendant oxetane groups.

ST photoreactive calixarene deriv pendant cyclic ether; oxetane calixarene deriv **photoreactive** prep'n; oxirane calixarene deriv

IT photoreactive prep'n

IT Metacyclophanes

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(calixarenes; prep'n. and polymn. of **photoreactive** calixarene derivs. contg. pendant cyclic ether groups)

IT Polymerization

(cationic, **photochem.**; prep'n. and polymn. of **photoreactive** calixarene derivs. contg. pendant cyclic ether groups)

IT 3132-64-7, Epibromohydrin **68971-82-4**, p-tert-Butylcalix[8]arene
79942-31-7, p-Methylcalix[6]arene

RL: RCT (Reactant)

(in prep'n. of **photoreactive** calixarene derivs. contg. pendant cyclic ether groups)

IT 65338-98-9P 99314-44-0P 237403-65-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(in prep'n. of **photoreactive** calixarene derivs. contg. pendant cyclic ether groups)

IT 237403-63-3P 237403-64-4P 243853-43-2P 243853-44-3P 259823-37-5P

343784-06-5P 343784-07-6P 343784-08-7P 343784-09-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prep'n. and **photoinitiated** cationic polymn. of)

IT 343784-10-1P 343784-11-2P 343784-12-3P 343784-13-4P 343784-14-5P

343784-15-6P 343784-16-7P 343784-17-8P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prep'n. by **photoinitiated** cationic polymn.)

IT 98-59-9, p-Toluenesulfonyl chloride

RL: RCT (Reactant)

(reaction with hydroxymethylmethyloxetane)

IT 108-46-3, Resorcinol, reactions

RL: RCT (Reactant)

(reaction with paraldehyde)

IT 123-63-7, Paraldehyde

RL: RCT (Reactant)

(reaction with resorcinol)

IT 3047-32-3, 3-Hydroxymethyl-3-ethyloxetane 3143-02-0,
3-Hydroxymethyl-3-methyloxetane

RL: RCT (Reactant)

(reaction with toluenesulfonyl chloride)

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Arimura, T; J Synth Org Chem Jpn 1989, V47, P523 CAPLUS

(2) Fujita, J; Appl Phys Lett 1996, V68, P1297 CAPLUS

(3) Gutsche, C; Calixarenes 1989

- (4) Hogberg, A; J Org Chem 1980, V45, P4498
 (5) Holman, R; UV and EB Curing Formulation for Printing Inks, Coatings and Paints 1988
 (6) Hori, M; Jpn Chem Pharm Bull 1985, V33, P1707 CAPLUS
 (7) Iyo, M; J Polym Sci Part A: Polym Chem 1999, V37, P3071 CAPLUS
 (8) Iyo, M; Polym Prepr Jpn 1996, V45, P448
 (9) Iyo, M; Proc RadTech Asia '97 1997, P349
 (10) Jacob, S; Macromolecules 1996, V29, P8631 CAPLUS
 (11) Lhotak, P; J Synth Org Chem Jpn 1995, V53, P523
 (12) Mandolini, L; Calixarene in Action 1999
 (13) Nakayama, R; Polym Prepr Jpn 1998, V47, P417
 (14) Nakayama, T; Bull Chem Soc Jpn 1998, V71, P2979 CAPLUS
 (15) Nakayama, T; Chem Lett 1997, P265 CAPLUS
 (16) Nishikubo, T; J Polym Sci Part A: Polym Chem 1999, V37, P1805 CAPLUS
 (17) Nishikubo, T; Synthesis and Application of Photosensitive Polymers 1979
 (18) Ochiai, Y; J Photopolym Sci Technol 2000, V13, P413 CAPLUS
 (19) Schmaljohann, D; Macromol Mater Eng 2000, V275, P31 CAPLUS
 (20) Starks, C; Phase Transfer Catalysis 1978
 (21) Takeshi, K; Chem Lett 1998, P865 CAPLUS
 (22) Takeshita, M; Bull Chem Soc Jpn 1995, V68, P1088 CAPLUS
 (23) Tsutsui, K; Polym Prepr Jpn 1998, V47, P417
 (24) Ueda, J; Macromolecules 1998, V31, P6762 CAPLUS
 (25) Ueda, M; Chem Mater 1998, V10, P2230 CAPLUS

L24 ANSWER 3 OF 3 CAPLUS COPYRIGHT 2002 ACS

AN 1999:328222 CAPLUS

DN 131:130330

TI Synthesis and **photochemical** reaction of novel p-alkylcalix[n]arene derivatives containing cationically polymerizable groups

AU Nishikubo, Tadatomi; Kameyama, Atsushi; Tsutsui, Kousuke; Iyo, Masami
 CS Department of Applied Chemistry, Faculty of Engineering, Kanagawa University, Yokohama, 221-8686, Japan

SO J. Polym. Sci., Part A: Polym. Chem. (1999), 37(12), 1805-1814
 CODEN: JPACEC; ISSN: 0887-624X

PB John Wiley & Sons, Inc.

DT Journal

LA English

CC 35-4 (Chemistry of Synthetic High Polymers)

AB New **photoreactive** p-methylcalix[6]arene (MCA) derivs. contg. cationically polymerizable groups such as propargyl ether (calixarene 1), allyl ether (calixarene 2), and ethoxy vinyl ether (calixarene 3) groups were synthesized with 80, 74, and 84% yields by the substitution reaction of MCA with propargyl bromide, allyl bromide, and 2-chloroethyl vinyl ether (CEVE), resp., in the presence of either potassium hydroxide or sodium hydride by using tetrabutylammonium bromide (TBAB) as a phase transfer catalyst (PTC). The p-tert-butylcalix[8]arene (BCA) deriv. contg. ethoxy vinyl ether groups (calixarene 4) was also synthesized in 83% yield by the substitution reaction of BCA with CEVE by using sodium hydride as a base and TBAB as a PTC. The MCA deriv. contg. 1-propenyl ether groups (calixarene 5) was synthesized in 80% yield by the isomerization of calixarene 2, which contained allyl ether groups, by using potassium tert-butoxide as a catalyst. The **photochem.** reactions of calixarene 1, 3, 4, 5, and 6 were exmd. with certain **photoacid** generators in the film state. In this reaction system, calixarene 3 contg. ethoxy vinyl ether groups showed the highest **photochem.** reactivity when bis-[4-(diphenylsulfonio)phenyl]sulfide bis(hexafluorophosphate) (DPSP) was used as the catalyst. On the other hand, calixarene 1 contg. propargyl ether groups had the highest **photochem.** reactivity when 4-morpholino-2,5-dibutoxybenzenediazonium hexafluorophosphate (MDBZ) was used as the catalyst. It was also found that the prep'd. calixarene derivs. contg. cationically polymerizable groups such as propargyl, allyl, vinyl, and also 1-propenyl ethers have good thermal stability.

ST **photochem** polymn vinyl propargyl propenyl calixarene; catalyst

photochem polymn unsatd alkylcalixarene

IT Polymerization

Polymerization catalysts

(cationic, **photochem.**; synthesis and **photochem.**)

polymn. of alkylcalix[n]arene derivs. contg. cationically polymerizable groups)

IT Addition reaction catalysts

Glass transition temperature

Isomerization

Solubility

Thermal stability

(synthesis and **photochem.** polymn. of alkylcalix[n]arene derivs. contg. cationically polymerizable groups)

IT Metacyclophanes

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(unsatd. derivs.; synthesis and **photochem.** polymn. of

alkylcalix[n]arene derivs. contg. cationically polymerizable groups)

IT 1112-67-0, Tetrabutylammonium chloride 1643-19-2, Tetrabutylammonium bromide 2304-30-5, Tetrabutylphosphonium chloride 3115-68-2, Tetrabutylphosphonium bromide 6674-22-2 7447-40-7, Potassium chloride (KCl), uses 7758-02-3, Potassium bromide (KBr), uses 17455-13-9, 18-Crown-6

RL: CAT (Catalyst use); USES (Uses)

(in unsatd. calixarene prepn.; synthesis and **photochem.**)

polymn. of alkylcalix[n]arene derivs. contg. cationically polymerizable groups)

IT 106-95-6, Allyl bromide, reactions 106-96-7, Propargyl bromide

3678-15-7, Glycidyl vinyl ether

RL: RCT (Reactant)

(in unsatd. calixarene prepn.; synthesis and **photochem.**)

polymn. of alkylcalix[n]arene derivs. contg. cationically polymerizable groups)

IT 110-75-8, 2-Chloroethyl vinyl ether

RL: RCT (Reactant)

(isomerization of; synthesis and **photochem.** polymn. of

alkylcalix[n]arene derivs. contg. cationically polymerizable groups)

IT 233775-59-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(isomerization of; synthesis and **photochem.** polymn. of

alkylcalix[n]arene derivs. contg. cationically polymerizable groups)

IT 32760-80-8 68015-88-3, 4-Morpholino-2,5-dibutoxybenzenediazonium hexafluorophosphate 74227-35-3, Bis-[4-(diphenylsulfonio)phenyl]sulfide bis(hexafluorophosphate)

RL: CAT (Catalyst use); USES (Uses)

(synthesis and **photochem.** polymn. of alkylcalix[n]arene derivs. contg. cationically polymerizable groups)

IT 68971-82-4, p-tert-Butylcalix[8]arene 79942-31-7

RL: RCT (Reactant)

(synthesis and **photochem.** polymn. of alkylcalix[n]arene derivs. contg. cationically polymerizable groups)

IT 233775-58-1P 233775-60-5P 233775-61-6P 233775-62-7P 233775-63-8P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(synthesis and **photochem.** polymn. of alkylcalix[n]arene derivs. contg. cationically polymerizable groups)

IT 233775-64-9P 233775-65-0P 233775-66-1P 233775-67-2P 233775-69-4P

RL: SPN (Synthetic preparation); PREP (Preparation)

(synthesis and **photochem.** polymn. of alkylcalix[n]arene derivs. contg. cationically polymerizable groups)

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Arimura, T; J Syn Org Chem Jpn 1989, V47, P523 CAPLUS

(2) CMC; Synthesis and Application of Photosensitive Polymers 1979

(3) Crivello, J; J Polym Sci Polym Chem Ed 1983, V21, P1785 CAPLUS

(4) Crivello, J; J Polym Sci Polym Chem Ed 1995, V33, P1381 CAPLUS

(5) Crivello, J; J Polym Sci Polym Chem Ed 1996, V34, P2051 CAPLUS

(6) Fujita, J; Appl Phys Lett 1996, V68, P1297 CAPLUS

(7) Gulluci, R; J Org Chem 1983, V48, P342

(8) Gutsche, C; Calixarenes 1989

- (9) Iizawa, T; Macromolecules 1984, V17, P992 CAPLUS
 (10) International Training Associates Limited; UV and EB Curing Formulation
 for Printing Inks Coatings and Paints 1988
 (11) Ito, H; J Polym Sci Polym Chem Ed 1997, V35, P3217
 (12) Ito, H; Macromolecules 1995, V28, P883
 (13) Iyo, M; Polym Prepr 1996, V45, P448
 (14) Iyo, M; Proceedings of RadTech Asia 1997 1997, P349
 (15) Keammerer, H; Monatsh Chem 1981, V112, P759
 (16) Lhotak, P; J Syn Org Chem Jpn 1995, V53, P523
 (17) Nakayama, T; Chem Lett 1997, P265 CAPLUS
 (18) Nishikubo, T; Application and Market of UV and EB Curing Technology 1989,
 P56
 (19) Ogasawara, T; Synthesis and Application of Photosensitive Polymers 1980,
 P403
 (20) Takeshita, M; Bull Chem Soc Jpn 1995, V68, P1088 CAPLUS
 (21) Wamme, N; Proc Am Chem Soc 1992, VPMSE67, P451

=> d his

(FILE 'HOME' ENTERED AT 10:34:31 ON 23 JAN 2002)

FILE 'CA' ENTERED AT 10:34:40 ON 23 JAN 2002

L1 2 S PFEIFFER?/AU AND CALIXARENE

FILE 'STNGUIDE' ENTERED AT 10:35:40 ON 23 JAN 2002

L2 FILE 'REGISTRY' ENTERED AT 10:38:03 ON 23 JAN 2002
 220 S CALIX AND ARENE

FILE 'CAPLUS' ENTERED AT 10:38:37 ON 23 JAN 2002

L3 97 S L2 AND PHOTO?
 L4 2 S L3 AND (E BEAM OR ELECTRON BEAM)
 L5 110 S L2 AND HYDROXY
 L6 3 S L3 AND HYDROXY
 L7 3 S L6 NOT L4
 L8 92 S L3 NOT L7 NOT L4
 L9 4 S L8 AND CHEM? (5A)AMPLI?
 L10 88 S L8 NOT L9
 L11 0 S L10 AND GLYCOLURIL
 L12 3 S L10 AND CROSSLINK?
 L13 85 S L10 NOT L12
 L14 4 S L13 AND PHOTORESIST?
 L15 81 S L13 NOT L14
 L16 0 S L15 AND LITHOGRAPH?
 L17 1 S L15 AND PHOTOCUR?
 L18 3 S L6 NOT L17
 L19 0 S L18 AND PHOTOACID
 L20 0 S L18 AND ACID?
 L21 0 S L18 AND RESIST
 L22 0 S L16 NOT L17
 L23 80 S L15 NOT L17
 L24 3 S L23 AND PHOTOACID

=> s l23 not l24

L25 77 L23 NOT L24

=> s l25 and resist?

1210873 RESIST?

L26 5 L25 AND RESIST?

=> d all 1-5

L26 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2002 ACS

AN 2000:80152 CAPLUS

DN 132:144365

TI Silver halide **photographic** material with good storage stability

IN Watanabe, Yasuhiro; Fukazawa, Fumie
PA Konica Co., Japan
SO Jpn. Kokai Tokkyo Koho, 82 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM G03C001-28
ICS G03C001-20; G03C007-00
CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|--|------|----------|-----------------|----------|
| PI | JP 2000035628 | A2 | 20000202 | JP 1998-202038 | 19980716 |
| AB | The photog. material has .gtoreq.1 red-sensitive Ag halide emulsion layers, .gtoreq.1 green-sensitive Ag halide emulsion layers, .gtoreq.1 blue-sensitive Ag halide emulsion layers, and .gtoreq.1 non-visible ray-sensitive Ag halide emulsion layers contg. .gtoreq.1 compds. showing strong sensitization effect. The material shows high sensitivity and good heat, moisture, and O resistance without increase of fog. | | | | |
| ST | nonvisible ray sensitive silver halide photog emulsion; IR sensitizer silver halide photog emulsion | | | | |
| IT | Photographic sensitizers
(IR; high-sensitivity silver halide photog. material having nonvisible ray-sensitive layers) | | | | |
| IT | Photographic films
(high-sensitivity silver halide photog. material having nonvisible ray-sensitive layers) | | | | |
| IT | Phenolic resins, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(high-sensitivity silver halide photog. material having nonvisible ray-sensitive layers) | | | | |
| IT | 366-18-7, 2,2'-Bipyridine 2503-56-2 9003-35-4, Phenol-formaldehyde copolymer 14187-32-7, Dibenzo-18-crown-6 23249-95-8 27934-56-1 63123-22-8 96425-00-2 137427-02-2 160380-68-7 256505-56-3
256505-57-4 , Calix[4]arenenetetrol-phenol-formaldehyde copolymer 256505-58-5
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(high-sensitivity silver halide photog. material having nonvisible ray-sensitive layers) | | | | |

L26 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2002 ACS
AN 1998:475424 CAPLUS
DN 129:222350
TI The effects of covalent binding of the electroactive components in durable CHEMFET membranes-impedance spectroscopy and ion sensitivity studies
AU Lugtenberg, Ronny J. W.; Egberink, Richard J. M.; van den Berg, Albert;
Engbersen, Johan F. J.; Reinhoudt, David N.
CS MESA Research Institute, Laboratory of Supramolecular Chemistry and Technology, University of Twente, Enschede, 7500 AE, Neth.
SO J. Electroanal. Chem. (1998), 452(1), 69-86
CODEN: JECHEZ; ISSN: 0368-1874
PB Elsevier Science S.A.
DT Journal
LA English
CC 72-2 (Electrochemistry)
Section cross-reference(s): 36, 79
AB The effects of covalent attachment of the electroactive components (i.e. the cation receptor mols. and the tetraphenylborate anions) in durable CHEMFET membranes is described. CHEMFETs for monovalent cations having either one or both electroactive components covalently bound in the membrane matrix exhibit Nernstian responses and good selectivities for Na⁺, or K⁺ ions, however, covalent attachment of borate in the membrane results in non-functioning sensors. Durability studies with CHEMFETs

modified with polysiloxane membranes which are selective for Na⁺, K⁺ and Pb²⁺ ions show long lifetimes upon continuous exposure to a water stream. Na⁺ selective CHEMFETs with covalently attached Na⁺ ionophores and free borate in the membrane are still Na⁺ selective after 82 wk of continuous exposure to water. Similar K⁺ and Pb²⁺ selective polysiloxane CHEMFETs showed good selectivities for at least 26 and 19 wk, resp. Impedance measurements showed that in all cases the lowest membrane resistance and the most stable CHEMFETs were obtained with polysiloxane membranes contg. covalently attached ion-selective calix[4]arene-based receptor mols. and free anionic sites.

- ST polysiloxane calixarene covalent binding electroactive component; CHEMFET membrane impedance ion sensitivity selectivity
- IT Sensors
(CHEMFET membranes with electroactive components)
- IT Ionophores
Membranes (nonbiological)
(FET modified with polysiloxane membranes - impedance spectroscopy and ion sensitivity studies)
- IT Field effect transistors
(chem. modified; modified with polysiloxane membranes - impedance spectroscopy and ion sensitivity studies)
- IT Mass spectra
Proton NMR spectroscopy
(for calix[4]arene derivs. used in fabrication of CHEMFETs modified with polysiloxane membrane selective for Na⁺, K⁺, Cs⁺, and Pb²⁺)
- IT ISFET
(modified with poly(hydroxyethyl methacrylate) hydrogel; durable CHEMFET modified with polysiloxane membranes with electroactive components)
- IT Process dynamics
(of CHEMFETs modified with polysiloxane membrane selective for Na⁺, K⁺, Cs⁺, and Pb²⁺)
- IT Stability
(of Na⁺, K⁺, and Pb²⁺ selective CHEMFET's modified with polysiloxane)
- IT Electric impedance
(of durable CHEMFET modified with polysiloxane membranes with electroactive components)
- IT Electric resistance
(of polysiloxane membranes with electroactive components)
- IT Ion selectivity
(with durable CHEMFET modified with polysiloxane membranes -)
- IT Ion-selective electrodes
(with durable CHEMFET modified with polysiloxane membranes - impedance spectroscopy and ion sensitivity studies)
- IT 14280-50-3, Lead(2+), properties 17341-25-2, Sodium(1+), properties 24203-36-9, Potassium(1+), properties
RL: PRP (Properties)
(CHEMFET modified with polysiloxane membranes ion sensitivity for)
- IT 158880-26-3
RL: PRP (Properties)
(effects of covalent binding of electroactive components in durable CHEMFET membranes-impedance spectroscopy and ion sensitivity studies)
- IT 105560-52-9, Potassium tetrakis-[3,5-bis(trifluoromethyl)phenyl]borate
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(in fabrication of durable CHEMFET modified with polysiloxane membranes)
- IT 77181-47-6, 2,2'-Dimethoxy-2-phenylacetophenone
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(photoinitiator on fabrication of ISFET modified with poly(hydroxyethyl methacrylate) hydrogel)
- IT 281-54-9, Calix[4]arene
RL: PRP (Properties); RCT (Reactant)
(reactant in synthesis 25,26,27-trihydroxy-28-propoxycalix[4]arene)
- IT 212519-06-7P 212519-09-0P
RL: NUU (Other use, unclassified); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(receptor in CHEMFET modified with polysiloxane membrane selective for

Cs+)
IT 212518-97-3P 212519-02-3P
RL: NUU (Other use, unclassified); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(receptor in CHEMFET modified with polysiloxane membrane selective for K+)
IT 97600-39-0 161323-87-1
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(receptor in CHEMFET modified with polysiloxane membrane selective for Na+)
IT 212519-12-5P 212519-14-7P
RL: NUU (Other use, unclassified); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(receptor in CHEMFET modified with polysiloxane membrane selective for Pb2+)
IT 150112-08-6P 212519-19-2P 212519-23-8P 212519-25-0P 212519-29-4P
212519-35-2P 212519-39-6P 212519-45-4P 212519-50-1P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(synthesis of calix[4]arene derivs.)
IT 212519-55-6P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis of calix[4]arene derivs.)
IT 138240-25-2 201282-04-4
RL: RCT (Reactant)
(synthesis of calix[4]arene derivs.)

L26 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2002 ACS
AN 1998:156486 CAPLUS
DN 128:263769
TI Stabilizing effect of p-tert-butylcalix[4]arene on radiation degradation of polypropylene
AU Yuan, Lihua; Feng, Wen; Zheng, Shiyou; Huang, Guanglin
CS Department of Chemistry, Sichuan University, Chengdu, 610064, Peop. Rep. China
SO Fushe Yanjiu Yu Fushe Gongyi Xuebao (1997), 15(4), 217-223
CODEN: FYYXEA; ISSN: 1000-3436
PB Fushe Yanjiu Yu Fushe Gongyi Xuebao Bianjibu
DT Journal
LA Chinese
CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
AB Polypropylene (PP) contg. a cyclic phenolic antioxidant p-tert-butylcalix[4]arene as additive was irradiated with .gamma.-ray in air or in vacuum at ambient temp. The mech. properties, variation of IR spectra and decompn. temp. in thermal anal. were measured for the irradiated PP sheets. Compared with BHT, p-tert-butylcalix[4]arene showed radiation stabilization towards PP during and after irradn., esp., at a high dose. The formation of the stable calix[4]arene radical was confirmed by ESR and other spectra. No decompn. species of the calixarene were obsd. with dose .ltoreq. 1000 key and dose rate of 6.5 x 103 key/h, indicating the higher radiation-resistance of the calixarene structure.
ST calixarene polypropylene gamma irradn mech property; radiation degrdn polypropylene stabilizer calixarene
IT IR spectra
(for study of stabilizing effect of calixarene on radiation degrdn. of polypropylene)
IT Phenolic antioxidants
(of calixarene for study of stabilizing effect on radiation degrdn. of polypropylene)
IT Metacyclophanes
RL: PRP (Properties)
(stabilizing effect of calixarene on radiation degrdn. of polypropylene)
IT Photolysis

(.gamma. radiation-induced; stabilizing effect of calixarene on
 radiation degrdn. of polypropylene)
 IT 9003-07-0, Polypropylene 60705-62-6, p-tert-Butylcalix[4]arene
 RL: PRP (Properties); RCT (Reactant)
 (stabilizing effect on radiation degrdn. of polypropylene)
 IT 205314-92-7P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (.gamma.-ray irradn. product of calixarene for stabilizing
 polypropylene)

L26 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2002 ACS

AN 1994:311500 CAPLUS

DN 120:311500

TI Electrophotographic photoreceptor containing calix arene compound

IN Maeda, Shuichi

PA Mitsubishi Chem Ind, Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03G005-05

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------------|------|------|-----------------|------|
|--|------------|------|------|-----------------|------|

PI JP 05323632 A2 19931207 JP 1992-133782 19920526

OS MARPAT 120:311500

GI For diagram(s), see printed CA Issue.

AB The photoreceptor has a photosensitive layer contg. a charge-generating compd., a charge-transporting compd., and a calixarene compd. having a general structure I ($m = 4-8$; $R_1 = H$, alkyl; $R_2 = H$, alkyl, phenyl). The photoreceptor shows O₃ resistance

ST electrophotog photoreceptor calixarene durable

IT Electrophotographic photoconductors and photoreceptors
 (contg. calixarene compd., ozone-resistant)

IT 10028-15-6, Ozone, miscellaneous

RL: MSC (Miscellaneous)
 (electrophotog. photoreceptors contg. calixarene compd. with resistance to)

IT 60705-62-6 78092-53-2 96107-95-8

RL: USES (Uses)
 (electrophotog. photoreceptors contg., for ozone resistance)

L26 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2002 ACS

AN 1992:215912 CAPLUS

DN 116:215912

TI Soluble calixarene derivatives and films prepared from them

IN Mita, Naoko

PA NEC Corp., Japan

SO Eur. Pat. Appl., 9 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM C07C069-12

ICS C08J005-18

CC 38-3 (Plastics Fabrication and Uses)
 Section cross-reference(s): 25, 74

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|------------|------|----------|-----------------|----------|
| PI | EP 456497 | A2 | 19911113 | EP 1991-304191 | 19910509 |
| | EP 456497 | A3 | 19930331 | | |
| | EP 456497 | B1 | 19950705 | | |

R: DE, FR, GB
 JP 04015232 A2 19920120 JP 1990-120310 19900510
 JP 06053819 B4 19940720
 JP 04128253 A2 19920428 JP 1990-249151 19900919
 JP 07023340 B4 19950315
 US 5143784 A 19920901 US 1991-694491 19910502
 PRAI JP 1990-120310 19900510
 JP 1990-249151 19900919
 OS MARPAT 116:215912
 AB The title derivs., esp. acetylated methylcalix[n]arenes ($n = 4-6$), show good solv. in org. solvents, form films with good heat **resistance** and hardness, and form neg. patterns upon irradn. and dissoln. of unirradiated regions with an org. solvent. Refluxing 18.7 g p-methylphenol with 9 g paraformaldehyde in xylene in the presence of aq. KOH soln. for 4 h, followed by reaction with Ac₂O, gave acetylated methylcalix[6]arene which was dissolved in PhMe and spin coated on Si to give a hard film.
 ST calixarene deriv prepn solv; formaldehyde methylphenol calixarene prepns; **resist** neg calixarene deriv; film calixarene deriv polymer; polymn calixarene deriv **resist**; irradn polymn calixarene **resist**
 IT Cyclophanes
 RL: PREP (Preparation)
 (meta-, derivs., prepn. of sol., for films and **resists**)
 IT Resists
 (photo-, neg.-working, calixarene derivs. for)
 IT Polymerization
 (radiochem., of calixarene derivs.)
 IT 79942-31-7
 RL: USES (Uses)
 (methylcalixarene)
 IT 60705-62-6P 68971-82-4P 82452-92-4P
 96627-08-6P, Calix[6]arene 141137-71-5P
 RL: PREP (Preparation)
 (prepn. of sol., for films and neg. **resist**)
 IT 141137-71-5DP, polymers
 RL: PREP (Preparation)
 (prepn. of, for films and neg. **resist**)
 IT 98-54-4, p-tert-Butylphenol 106-44-5, p-Methylphenol, reactions
 108-95-2, Phenol, reactions 140-66-9, p-tert-Octylphenol
 RL: RCT (Reactant)
 (reaction of, with formaldehyde, in prepn. of calixarene derivs.)
 IT 108-24-7, Acetic anhydride
 RL: RCT (Reactant)
 (reaction of, with methylcalixarenes)
 IT 30525-89-4, Paraformaldehyde
 RL: RCT (Reactant)
 (reaction of, with phenol derivs., in prepn. of calixarenes)

=> d his

(FILE 'HOME' ENTERED AT 10:34:31 ON 23 JAN 2002)
 FILE 'CA' ENTERED AT 10:34:40 ON 23 JAN 2002
 L1 2 S PFEIFFER?/AU AND CALIXARENE
 FILE 'STNGUIDE' ENTERED AT 10:35:40 ON 23 JAN 2002
 FILE 'REGISTRY' ENTERED AT 10:38:03 ON 23 JAN 2002
 L2 220 S CALIX AND ARENE
 FILE 'CAPLUS' ENTERED AT 10:38:37 ON 23 JAN 2002
 L3 97 S L2 AND PHOTO?
 L4 2 S L3 AND (E BEAM OR ELECTRON BEAM)
 L5 110 S L2 AND HYDROXY
 L6 3 S L3 AND HYDROXY
 L7 3 S L6 NOT L4

L8 92 S L3 NOT L7 NOT L4
L9 4 S L8 AND CHEM? (5A)AMPLI?
L10 88 S L8 NOT L9
L11 0 S L10 AND GLYCOLURIL
L12 3 S L10 AND CROSSLINK?
L13 85 S L10 NOT L12
L14 4 S L13 AND PHOTORESIST?
L15 81 S L13 NOT L14
L16 0 S L15 AND LITHOGRAPH?
L17 1 S L15 AND PHOTOCUR?
L18 3 S L6 NOT L17
L19 0 S L18 AND PHOTOACID
L20 0 S L18 AND ACID?
L21 0 S L18 AND RESIST
L22 0 S L16 NOT L17
L23 80 S L15 NOT L17
L24 3 S L23 AND PHOTOACID
L25 77 S L23 NOT L24
L26 5 S L25 AND RESIST?

=> s 125 not 126
L27 72 L25 NOT L26

=> s 127 and lithograph?
 31738 LITHOGRAPH?
L28 0 L27 AND LITHOGRAPH?

=> s 127 and acid?
 3925768 ACID?
L29 15 L27 AND ACID?

=> d all 1-15

L29 ANSWER 1 OF 15 CAPLUS COPYRIGHT 2002 ACS
AN 2001:466036 CAPLUS
DN 135:204581
TI Characterization of calixarenes by coupling of liquid chromatography with MALDI-TOF-MS
AU Kruger, Ralph-Peter; Falkenhagen, Jana; Schulz, Gunter; Gloede, Jorg
CS Bundesanstalt fur Materialforschung und -prufung (BAM), Unter den Eichen
87, Fachgruppe VI.3, Berlin, 12205, Germany
SO GIT Labor-Fachz. (2001), 45(4), 380-384
CODEN: GLFAF5
PB GIT Verlag GmbH
DT Journal
LA German
CC 80-6 (Organic Analytical Chemistry)
AB The sepn. of calixarene and calixarene derivs. occurring as byproducts in the industrial novolak resin prodn. was studied with liq. adsorption chromatog. at crit. conditions (LACCC). The LACCC was performed on a RP-phase column using a THF/water mixt. with 0.1% trifluoroacetic acid and a coupling with MALDI-TOF mass spectrometry was used for the identification of the calixarenes. For the characterization of an octylphenol novolak and a p-octyl calixarene mixt. the crit. solvent compn. was detd. where octyl calixarenes with different ring sizes eluted at the same retention time whereas the novolak appears sepd. in the chromatogram. As for an increasing hydrophobic character of the calixarenes a lower polarity of the mobile phase is required for the elution of the calixarenes this was further used to sep. differently substituted calixarenes. In addn. substituted calixarene were sepd. according to their ring sizes using the crit. conditions for octyl calixarenes.
ST liq adsorption chromatog MALDI MS calixarene detn
IT Liquid chromatography
 (adsorption, at crit. conditions; calixarene detn. by coupling of liq. chromatog. with MALDI-TOF-MS)
IT Hyphenated techniques

Time-of-flight mass spectrometry
(calixarene detn. by coupling of liq. chromatog. with MALDI-TOF-MS)

IT Metacyclophanes

RL: ANT (Analyte); ANST (Analytical study)
(calixarenes; calixarene detn. by coupling of liq. chromatog. with MALDI-TOF-MS)

IT Laser ionization mass spectrometry

(photodesorption, matrix-assisted; calixarene detn. by coupling of liq. chromatog. with MALDI-TOF-MS)

IT Laser desorption mass spectrometry

(photoionization, matrix-assisted; calixarene detn. by coupling of liq. chromatog. with MALDI-TOF-MS)

IT 42607-92-1 53255-02-0 59288-62-9 60705-62-6

68971-82-4 68971-85-7 74568-07-3

78092-53-2 79942-31-7 81475-22-1

82452-92-4 82452-93-5 83933-03-3

96107-95-8 135549-05-2 138452-84-3

RL: ANT (Analyte); ANST (Analytical study)

(calixarene detn. by coupling of liq. chromatog. with MALDI-TOF-MS)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Belenkii, B; J Chromatogr 1978, V147, P99 CAPLUS
- (2) Bohmer, V; Angew Chem 1995, V107, P785
- (3) Fischer, C; Eur J Org Chem 1998, P155 CAPLUS
- (4) Gutsche, C; Calixarene Revisited in Monographs in Supramolecular Chemistry 1989
- (5) Gutsche, C; Calixarene Revisited in Monographs in Supramolecular Chemistry 1998
- (6) Gutsche, C; Calixarene Revisited in Monographs in Supramolecular Chemistry 1998
- (7) Montag, P; CLB Chemie in Labor und Biotechnik 1999, V50, P253 CAPLUS
- (8) Pasch, H; HPLC of Polymers 1997
- (9) Weidner, S; Int J Polym Anal Charact 2000, V5, P549
- (10) Willis, J; Polym Mater Sci Eng 1993, V69, P120 CAPLUS
- (11) Yamakawa, Y; J Chem Soc Perkin Trans I 1998, V24, P4135

L29 ANSWER 2 OF 15 CAPLUS COPYRIGHT 2002 ACS

AN 2001:391084 CAPLUS

DN 135:146412

TI Photomechanical chemical microsensors

AU Datskos, P. G.; Sepaniak, M. J.; Tipple, C. A.; Lavrik, N.

CS Oak Ridge National Laboratory, Oak Ridge, TN, 37831-8039, USA

SO Sens. Actuators, B (2001), B76(1-3), 393-402

CODEN: SABCEB; ISSN: 0925-4005

PB Elsevier Science B.V.

DT Journal

LA English

CC 80-2 (Organic Analytical Chemistry)

Section cross-reference(s): 4

AB Recently, there was an increasing demand to perform real-time in situ chem. detection of hazardous materials, contraband chems., and explosive chems. The advent of inexpensive mass produced MEMS (microelectromech. systems) devices has enabled the use of various microstructures for chem. detection. For example, microcantilevers respond to chem. stimuli by undergoing changes in their bending and resonance frequency even when a small no. of mols. adsorb on their surface. In the authors' present studies, the authors extended this concept by studying changes in both the adsorption-induced stress and photo-induced stress as target chems. adsorb or desorb on the surface of microcantilevers. Photo-induced bending of microcantilevers depends on the no. of absorbed mols. on their surface. However, microcantilevers that have undergone photo-induced bending will adsorb a different no. of guest mols. Depending on the photon wavelength and microcantilever material, the microcantilever can be made to bend by expanding or contracting a surface layer on one of its sides, unequally. Coating the surface of the microstructure with different materials can provide chem. specificity for the target chems. However, by choosing a handful of different

photon wavelengths, tunable chem. selectivity can be achieved due to differentiated **photo-induced response** without the need for multiple chem. coatings. The authors will present and discuss the authors' results on diisopropyl Me phosphonate (DIMP), trinitrotoluene (TNT), two isomers of dimethylnaphthalene (DMN), tetrachloroethylene (TCE) and trichloroethylene (TRCE).

ST photomech chem microsensor
IT Sensors
 (MEMS; photomech. chem. microsensors)
IT Cantilevers (components)
 (microcantilever; photomech. chem. microsensors)
IT 79-01-6, Trichloroethylene, analysis 118-96-7, Trinitrotoluene 127-18-4, Tetrachloroethylene, analysis 569-41-5, 1,8-Dimethylnaphthalene 582-16-1, 2,7-Dimethylnaphthalene 1445-75-6, DIMP
RL: ANT (Analyte); ANST (Analytical study)
 (analyte; photomech. chem. microsensors)
IT 13770-18-8, Copper perchlorate 71310-21-9, 11-Mercaptoundecanoic acid
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
 (coating material; photomech. chem. microsensors for detection of DIMP)
IT 60705-62-6, 4-tert-Butylcalix[4]arene
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
 (coating material; photomech. chem. microsensors for detection of chlorinated ethylene)
IT 160661-60-9, Per-6-thio-.beta.-cyclodextrin
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
 (coating material; photomech. chem. microsensors for detection of dimethylnaphthalene isomers)
IT 7440-57-5, Gold, analysis 12033-89-5, Silicon nitride, analysis
RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST (Analytical study); USES (Uses)
 (gold-coated silicon nitride microcantilevers; photomech. chem. microsensors for detection of TNT)

RE.CNT 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Andle, J; An Acoustic Plate Mode Device for Biosensor Applications 1991, P191
- (2) Baller, M; Ultramicroscopy 2000, V82, P1 CAPLUS
- (3) Betts, T; Anal Chim Acta 2000, V422, P89 CAPLUS
- (4) Bowers, W; Rev Sci Instrum 1991, V62, P1624 CAPLUS
- (5) Britton, J; Ultramicroscopy 2000, V82, P17
- (6) Brugger, J; Sens Actuators A 1994, V43, P339
- (7) Chen, G; J Appl Phys 1995, V77, P3618 CAPLUS
- (8) Datskos, P; Appl Phys Lett 1996, V69, P2986 CAPLUS
- (9) Datskos, P; Appl Phys Lett 1998, V73, P2319 CAPLUS
- (10) Datskos, P; SPIE 1997, V3118, P280 CAPLUS
- (11) Datskos, P; SPIE 1998, V3978, P173
- (12) Datskos, P; SPIE 1999, V3698, P151 CAPLUS
- (13) Datskos, P; Sens Actuators B 2000, V3016, P1
- (14) Dominik, A; Supramolecular Sci 1994, V1, P11 CAPLUS
- (15) Figielski, T; Phys Status Solidi 1961, V1, P306 CAPLUS
- (16) Goddenhenrich, T; J Vacuum Sci Technol A 1990, V8, P383
- (17) Grate, J; Anal Chem 1991, V63, P1552 CAPLUS
- (18) Grate, J; Anal Chem 1993, V65, P1868 CAPLUS
- (19) Harris, J; Rev Sci Instrum 1996, V67, P3591 CAPLUS
- (20) Hoh, J; J Am Chem Soc 1992, V114, P4917 CAPLUS
- (21) Janata, J; Chemical sensors, Anal Chem 1994, V66, PR207
- (22) Janata, J; Principles of Chemical Sensors 1989
- (23) Kepley, L; Anal Chem 1992, V64, P3191 CAPLUS
- (24) Lang, H; Anal Chim Acta 1999, V393, P59 CAPLUS
- (25) Lang, H; Appl Phys Lett 1998, V72, P383 CAPLUS
- (26) Oden, P; Appl Phys Lett 1996, V69, P3277 CAPLUS
- (27) Ohnesorge, F; Science 1993, V260, P1451 CAPLUS

- (28) Sarid, D; Scanning Force Microscopy with Applications to Electric, Magnetic, and Atomic Forces 1991
 (29) Schiebaum, K; Fresenius J Anal Chem 1994, V349, P372
 (30) Stearns, R; Appl Phys Lett 1985, V47, P1048 CAPLUS
 (31) Stoney, G; Proc R Soc, Lond A 1909, V82, P172 CAPLUS
 (32) Tabib-Azar, M; Sens Actuators 1990, VA21-A23, P229
 (33) Thundat, T; Anal Chem 1995, V67, P519 CAPLUS
 (34) Thundat, T; Appl Phys Lett 1995, V66, P1695 CAPLUS
 (35) Thundat, T; Microcantilever Sensors 1996
 (36) Tomishenko, S; Theory of Plates and Shells 1940
 (37) Tortonese, M; Appl Phys Lett 1993, V62, P834 CAPLUS
 (38) Ullevig, D; Anal Chem 1982, V54, P2341 CAPLUS
 (39) Varesi, J; Appl Phys Lett 1997, V71, P306 CAPLUS
 (40) von Preissig, F; J Appl Phys 1989, V66, P4262
 (41) Wachter, E; Rev Sci Instrum 1995, V66, P3662 CAPLUS
 (42) Wickramasinghe, H; Appl Phys Lett 1978, V33, P923

L29 ANSWER 3 OF 15 CAPLUS COPYRIGHT 2002 ACS

AN 2000:606101 CAPLUS

DN 133:281595

TI Calixarenes which are transporters in liquid membranes. II. Azo derivatives of calix[4]arenes

AU Serban, Bogdan; Ruse, Elena; Minca, Mihaela; Pasare, Iulian; Nechifor, Gheorghe

CS Facultatea de Chimie Industriala, Universitatea Politehnica Bucuresti, Rom.

SO Revista de Chimie (Bucharest) (2000), 51(4), 249-258

CODEN: RCBUAU; ISSN: 0034-7752

PB SYSCOM 18 SRL

DT Journal

LA Romanian

CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

AB Two chromophoric calixarenes were prepd. by coupling reactions between calix[4]arene and diazonium salts of 4'-aminobenzo-15-crown-5 and sulfanilic acid. Coupling reactions were carried out in heterogeneous medium in order to diminish the rate of coupling and avoid the introduction of chromophoric azo-group in all p-position. The metal complexation behavior of newly prepd. compds. was investigated with the help of UV-VIS and IR spectroscopy. Most attention has been paid to the azo compd. derived from sulfanilic acid, which can serve as an acid-base indicator in aq. soln. (UV-VIS spectra were recorded at various pH values). The facilitated transport with azo-calixarene derivs. of some cations through ferrofluid membranes was studied. This transport was monitored through UV-VIS and flame photometry methods.

ST arylazocalixarene prepn ion transport ferrofluid membrane; calixarene arylazo prepn ion transport ferrofluid membrane

IT Membranes, nonbiological

(prepn. and ion transport through ferrofluid membranes by arylazocalixarenes)

IT 14280-50-3, Lead(II) ion, processes 16397-91-4, Manganese(II) ion, processes

RL: PEP (Physical, engineering or chemical process); PROC (Process)
 (prepn. and ion transport through ferrofluid membranes by arylazocalixarenes)

IT 299949-96-5P 299949-97-6P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (prepn. and ion transport through ferrofluid membranes by arylazocalixarenes)

IT 98-54-4 108-95-2, Phenol, reactions 121-57-3, Sulfanilic acid
 60835-71-4, 4'-Aminobenzo-15-crown-5

RL: RCT (Reactant)
 (prepn. and ion transport through ferrofluid membranes by arylazocalixarenes)

IT 60705-62-6P, p-tert-Butylcalix[4]arene 74339-92-7P

74568-07-3P, Calix[4]arene

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(prep. and ion transport through ferrofluid membranes by
arylazocalixarenes)

L29 ANSWER 4 OF 15 CAPLUS COPYRIGHT 2002 ACS
AN 2000:320209 CAPLUS
DN 133:131776
TI New purification protocol for actinide measurement in excreta based on calixarene chemistry
AU Dinse, C.; Baglan, N.; Cossonnet, C.; Bouvier, C.
CS Service de Dosimetrie, Departement de Protection de la Sante de l'Homme et de Dosimetrie, IPSN, Institut de Protection et de Surete Nucleaire, Fontenay-aux-Roses, F-92265, Fr.
SO Appl. Radiat. Isot. (2000), 53(1-2), 381-386
CODEN: ARISEF; ISSN: 0969-8043
PB Elsevier Science Ltd.
DT Journal
LA English
CC 8-1 (Radiation Biochemistry)
AB The detn. of actinide concn. level in excreta, mainly urine is currently carried out to monitor people potentially exposed to .alpha. emitters. To measure actinides in such samples, specific anal. protocols have been set up. The chem. purifn. uses different chromatog. columns to selectively sep. the actinides and each fraction, after electroplating, is measured by .alpha. spectrometry. To reach 1 mBq l-l of U, Pu or Am using these protocols, 6 days equally distributed between the chem. purifn. and the measurement are necessary. The protocol proposed here is based on a single extractant, the 1,3,5-trimethoxy-2,4,6-tricarboxy-p-tert-butyl-calix[6]arene, used to selectively sep. U, Pu and Am from the urinary matrix prior to be measured. Using this anal. protocol, U and Pu are quant. and selectively recovered in two different **acidic** back extn. solns. whereas Am is quant. and selectively recovered in the org. phase. Furthermore, the purifn. stage is considerably shortened. The uranium and plutonium amts. are measured in aq. phases using .alpha. spectrometry or inductively coupled plasma-mass spectrometry, whereas Am is measured in the org. phase using .alpha. liq. scintillation (photon/electron-rejecting alpha liq. scintillation).
ST urine actinide detn purifn calixarene reagent
IT Extraction
Urine analysis
(purifn. protocol for actinide measurement in excreta based on calixarene chem.)
IT Actinides
RL: ANT (Analyte); ANST (Analytical study)
(purifn. protocol for actinide measurement in excreta based on calixarene chem.)
IT 96107-95-8D, Calix[6]arene, deriv.
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(purifn. protocol for actinide measurement in excreta based on calixarene chem.)
IT 7440-07-5P, Plutonium, preparation 7440-35-9P, Americium, preparation
7440-61-1P, Uranium, preparation
RL: PUR (Purification or recovery); PREP (Preparation)
(purifn. protocol for actinide measurement in excreta based on calixarene chem.)
RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Aupiais, J; Anal Chem 1997, V69(13), P2275
(2) Baglan, N; Health Physics 1999, V77(4), P455 CAPLUS
(3) Baglan, N; J of Radioanalytical and Nuclear Chem 2000, V243(2), P357
(4) Baglan, N; Radiation Protection Dosimetry 1998, V79(1/4), P477
(5) Casnati, A; J Chem Soc Commun 1991, P1413 CAPLUS
(6) Dinse, C; J Alloys Compounds 1998, V271-273, P778 CAPLUS
(7) Dinse, C; These Universite Louis Pasteur 1999
(8) Hallastadius, L; Nuclear Instruments and Methods in Physics Research 1984, V223, P266
(9) Harduin, J; Radioprotection 1996, V31(2), P229 CAPLUS
(10) Otsuka, H; Tetrahedron 1995, V51(32), P8757 CAPLUS

(11) Sansoni, B; Z Anal Chem 1968, P209 CAPLUS

L29 ANSWER 5 OF 15 CAPLUS COPYRIGHT 2002 ACS

AN 2000:164896 CAPLUS

DN 133:39995

TI Use of film sodium-, potassium-, and chloride-selective electrodes for analysis of blood serum

AU Egorov, V. V.; Rakhman'ko, E. M.; Nikolaev, B. A.; Rat'ko, A. A.; Lomako, S. V.

CS NII Fiz.-Khim. Problem, "Belgosuniversiteta", Belarus

SO Vestsi Nats. Akad. Navuk Belarusi, Ser. Khim. Navuk (1999), (3), 5-9

CODEN: VNBNFX; ISSN: 1561-8331

PB Belaruskaya Navuka

DT Journal

LA Russian

CC 9-1 (Biochemical Methods)

AB Electrochem. characteristics of K⁺-selective electrode based on compn. of valinomicin and trioctyloxybenzenesulfonic acid. Cl⁻ selective electrode based on trinonyloctadecylammonium chloride, Na⁺-selective electrode based on compn. of sodium tetrakis(4-chloro)phenylborate and 4-tertbutylcalix[4]arene-tetra-Et ether of tetraacetic acid are studied. The electrodes studied have been shown to be suitable for- K⁺, Na⁺ and Cl⁻ detn. in dild. solns. of blood serum in a variant of non-flow-anal. The consistence of measurements is optimized and method of potentiometric detn. of K⁺, Na⁺ and Cl⁻ is offered characterized by a high productivity, correctivity and reproducibility. The results of potentiometric detn. of potassium, sodium and chloride ions have been shown to have a better reproducibility and correlate well with the results of flame-photometrical and titrimetrical detns.

ST ion selective membrane electrode blood chloride sodium potassium potentiometry

IT Ion-selective electrodes

(chloride-selective; use of film sodium-, potassium-, and chloride-selective electrodes for anal. of blood serum)

IT Ion-selective electrodes

(potassium-selective; use of film sodium-, potassium-, and chloride-selective electrodes for anal. of blood serum)

IT Ion-selective electrodes

(sodium-selective; use of film sodium-, potassium-, and chloride-selective electrodes for anal. of blood serum)

IT Blood analysis

Potentiometry

(use of film sodium-, potassium-, and chloride-selective electrodes for anal. of blood serum)

IT 7440-09-7, Potassium, analysis 7440-23-5, Sodium, analysis 16887-00-6, Chloride, analysis

RL: ANT (Analyte); ANST (Analytical study)

(use of film sodium-, potassium-, and chloride-selective electrodes for anal. of blood serum)

IT 2001-95-8, Valinomicin 14644-80-5, Sodium tetrakis(4-chloro)phenylborate 69674-64-2, Trinonyloctadecylammonium chloride 97600-39-0

RL: ARG (Analytical reagent use); DEV (Device component use); ANST (Analytical study); USES (Uses)

(use of film sodium-, potassium-, and chloride-selective electrodes for anal. of blood serum)

L29 ANSWER 6 OF 15 CAPLUS COPYRIGHT 2002 ACS

AN 1999:603477 CAPLUS

DN 131:243291

TI Method for preparation of cyclic (halomethyl)phenol sulfide

IN Takeya, Haruhiko; Miyanari, Setsuko; Kumagaya, Hitoshi

PA Cosmo Sogo Kenkyusho K. K., Japan; Cosmo Oil Co., Ltd.

SO Jpn. Kokai Tokkyo Koho, 6 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C07D341-00

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|--|------|----------|-----------------|----------|
| PI | JP 11255766 | A2 | 19990921 | JP 1998-75055 | 19980310 |
| OS | CASREACT 131:243291; MARPAT 131:243291 | | | | |
| GI | For diagram(s), see printed CA Issue. | | | | |
| AB | The title compds. (I; X = H, hydrocarbyl, acyl; Y = H, halomethyl, at least one of plural no. of Ys being halomethyl; m = 1-7; a plural no. of X, Y, and m is same or different; n = 3-12) are prep'd. by reaction of cyclic phenol sulfide (I; Y = H; X, m, n = same as above) with a halomethylation agent, preferably chloromethyl Me ether or bromomethyl Me ether, in the presence of a catalyst, preferably AlCl ₃ , ZnCl ₂ , BF ₃ , or TiCl ₄ . These compds. possess a cage-type structure and are useful as intermediates for antioxidants, catalysts, metal-sequestering agents, photosensors, substrate-specific sensors, and polymers. Thus, 27.5 g sulfur and 17.2 g NaOH were added to 64.5 g 4-tert-butylphenol in 19 mL tetraethylene glycol di-Me ether, gradually heated to 230.degree. over 4 h with removal of water and H ₂ S formed, cooled to room temp., treated with 500 mL Et ₂ O, and hydrolyzed 1 N H ₂ SO ₄ to give, after silica gel chromatog., 37.9 g I (n = 4, m = 1, X = H, Y = tert-butyl). The latter compd. (37.9 g) and 10.0 g AlCl ₃ were dissolved in 2,000 mL PhMe and allowed to react at 55.degree. for 24 h to give 0.50 g I (X = Y = H, n = 4, m = 1). To the latter compd. (1 g) were added 25 mL chloromethyl Me ether and 50 mg anhyd. ZnCl ₂ and refluxed for 5 h under N to give 1.27 g I (X = H, Y = ClCH ₂ , n = 4, m = 1) (92%). | | | | |
| ST | cyclic halomethylphenol sulfide prepn; halomethylation cyclic phenol sulfide; aluminum chloride halomethylation catalyst; zinc chloride halomethylation catalyst; boron trifluoride halomethylation catalyst; titanium tetrachloride halomethylation catalyst | | | | |
| IT | Halomethylation
(catalysts, Lewis acids; prepn. of cyclic (halomethyl)phenol sulfides by halomethylation of cyclic phenol sulfides) | | | | |
| IT | Methylation catalysts
(halomethylation, Lewis acids; prepn. of cyclic (halomethyl)phenol sulfides by halomethylation of cyclic phenol sulfides) | | | | |
| IT | Sequestering agents
(metal; prepn. of cyclic (halomethyl)phenol sulfides as intermediates for antioxidants, catalysts, metal-sequestering agents, photosensors, substrate-specific sensors, and polymers) | | | | |
| IT | Antioxidants
Catalysts
Optical detectors
Sensors
(prepn. of cyclic (halomethyl)phenol sulfides as intermediates for antioxidants, catalysts, metal-sequestering agents, photosensors, substrate-specific sensors, and polymers) | | | | |
| IT | Polymers, preparation
RL: PNU (Preparation, unclassified); PREP (Preparation)
(prepn. of cyclic (halomethyl)phenol sulfides as intermediates for antioxidants, catalysts, metal-sequestering agents, photosensors, substrate-specific sensors, and polymers) | | | | |
| IT | Halomethylation
(prepn. of cyclic (halomethyl)phenol sulfides by halomethylation of cyclic phenol sulfides) | | | | |
| IT | Lewis acids
RL: CAT (Catalyst use); USES (Uses)
(prepn. of cyclic (halomethyl)phenol sulfides by halomethylation of cyclic phenol sulfides) | | | | |
| IT | 7446-70-0, Aluminum chloride, uses 7550-45-0, Titanium tetrachloride, uses 7637-07-2, Boron trifluoride, uses 7646-85-7, Zinc chloride, uses RL: CAT (Catalyst use); USES (Uses)
(prepn. of cyclic (halomethyl)phenol sulfides by halomethylation of cyclic phenol sulfides) | | | | |
| IT | 98-54-4 107-30-2, Chloromethyl methyl ether 7704-34-9, Sulfur, | | | | |

reactions 13057-17-5, Bromomethyl methyl ether

RL: RCT (Reactant)

(prepn. of cyclic (halomethyl)phenol sulfides by halomethylation of
cyclic phenol sulfides)

IT 182496-55-5P 182496-69-1P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(prepn. of cyclic (halomethyl)phenol sulfides by halomethylation of
cyclic phenol sulfides)

IT 244087-92-1P 244087-94-3P

RL: SPN (Synthetic preparation); PREP (Preparation)

(prepn. of cyclic (halomethyl)phenol sulfides by halomethylation of
cyclic phenol sulfides)

L29 ANSWER 7 OF 15 CAPLUS COPYRIGHT 2002 ACS

AN 1999:514520 CAPLUS

DN 131:272201

TI Synthesis and **photochemical** reaction of novel
p-alkylcalix[6]arene derivatives containing acryloyl or methacryloyl
groups

AU Iyo, Masami; Tsutsui, Kosuke; Kameyama, Atsushi; Nishikubo, Tadatoimi

CS Department of Applied Chemistry, Faculty of Engineering, Kanagawa
University, Yokohama, 221-8686, Japan

SO J. Polym. Sci., Part A: Polym. Chem. (1999), 37(16), 3071-3078

CODEN: JPACCEC; ISSN: 0887-624X

PB John Wiley & Sons, Inc.

DT Journal

LA English

CC 35-2 (Chemistry of Synthetic High Polymers)

AB Novel polyfunctional (meth)acrylates with a calixarene backbone
[calixarene (meth)acrylates] were synthesized in good yields by certain
reactions of p-methylcalix[6]arene (1a) or p-tert-butylcalix[6]arene (1b)
with (meth)acrylate derivs. such as acryloyl chloride, methacryloyl
chloride, (2-methacryloxy)ethyl isocyanate, and glycidyl methacrylate.
Polyfunctional acrylate 6a having poly(oxyethylene) spacer chain between
1a and acrylate groups was also synthesized by the reaction of the
poly(oxyethylene) modified 1a with acrylic acid. Calixarene
acrylate 6a was liq. at room temp., although the other calixarene
(meth)acrylates were solid at room temp. The initial decompr. temp. (IDT)
of the resulting calixarene (meth)acrylates was measured by the
thermogravimetric anal. to evaluate the thermal stability, and it was
found that some of the IDTs of the calixarene acrylates were over
400.degree.. This means that calixarene (meth)acrylates have very good
thermal stability. The **photopolymn.** of the resulting some
calixarene (meth)acrylates with (2-phenoxy)ethyl acrylate as a reactive
diluent in the presence of **photoinitiator** proceeded smoothly
upon irradn. with UV light. Therefore, polyfunctional (meth)acrylates
with a calixarene backbone can be expected to be novel and thermally
stable **photoreactive** acrylate oligomers.

ST calixarene deriv acrylate prepn radical **photopolymn**;
methacrylate calixarene deriv prepn radical **photopolymn**; thermal
stability calixarene deriv acrylate methacrylate polymer

IT Polymerization

(**photochem.**, radical; synthesis, properties and
photopolymn. of novel p-alkylcalix[6]arene derivs. contg.
acryloyl or methacryloyl groups)

IT Solubility

(synthesis, properties and **photopolymn.** of novel
p-alkylcalix[6]arene derivs. contg. acryloyl or methacryloyl groups)

IT 78092-53-2P, p-tert-Butylcalix[6]arene 79942-31-7P,
p-Methylcalix[6]arene

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(intermediate; synthesis and **photochem.** reaction of novel
p-alkylcalix[6]arene derivs. contg. acryloyl or methacryloyl groups)

IT 220953-77-5P 221550-29-4P 245416-16-4P 245416-18-6P 245416-19-7P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation)

(monomer; synthesis and **photochem.** reaction of novel

IT p-alkylcalix[6]arene derivs. contg. acryloyl or methacryloyl groups) 79-10-7, 2-Propenoic acid, reactions 98-54-4 106-44-5, reactions 106-91-2 107-07-3, 2-Chloroethanol, reactions 814-68-6, 2-Propenoyl chloride 920-46-7, Methacryloyl chloride 30525-89-4, Paraformaldehyde 30674-80-7, (2-Methacryloxy)ethyl isocyanate
RL: RCT (Reactant)
(starting material; synthesis and photochem. reaction of novel p-alkylcalix[6]arene derivs. contg. acryloyl or methacryloyl groups)

IT 245416-15-3P 245416-17-5P 245416-20-0P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis and photochem. reaction of novel p-alkylcalix[6]arene derivs. contg. acryloyl or methacryloyl groups)

IT 245416-22-2P 245416-23-3P 245416-24-4P 245416-25-5P 245416-26-6P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis, properties and photopolymn. of novel p-alkylcalix[6]arene derivs. contg. acryloyl or methacryloyl groups)

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Arimura, T; J Synthet Org Chem Jpn 1989, V47, P523 CAPLUS
- (2) Dhawan, B; Makromol Chem 1987, V188, P921 CAPLUS
- (3) Fujita, J; Appl Phys Lett 1996, V68, P1297 CAPLUS
- (4) Gutsche, C; Calixarenes 1989
- (5) Gutsche, C; J Am Chem Soc 1981, V103, P3782 CAPLUS
- (6) Holman, R; UV and EB Curing Formulation for Printing Inks Coatings and Paints 1988
- (7) Iyo, M; Polym Preprints Jpn 1996, V45, P448
- (8) Iyo, M; Proceedings of RadTech Asia '97 1997, P349
- (9) Keammerer, H; Monatsh Chem 1981, V112, P759
- (10) Lhotak, P; J Synthet Org Chem Jpn 1995, V53, P523
- (11) Nakayama, T; Chem Lett 1997, P265 CAPLUS
- (12) Nishikubo, T; J Polym Sci Part A Polym Chem to appear
- (13) Nishikubo, T; Synthesis and Application of Photosensitive Polymers 1979
- (14) Tabata, Y; Technology & Application of UV/EB Curing 1997
- (15) Tabata, Y; Ultraviolet and Electron Beam Curable Materials 1989
- (16) Takeshita, M; Bull Chem Soc Jpn 1995, V68, P1088 CAPLUS
- (17) Wamme, N; Proc Am Chem Soc 1992, V67, P451 CAPLUS

L29 ANSWER 8 OF 15 CAPLUS COPYRIGHT 2002 ACS

AN 1999:251900 CAPLUS

DN 131:5011

TI Noncovalent assembly of a fifteen-component hydrogen-bonded nanostructure

AU Jolliffe, Katrina A.; Timmerman, Peter; Reinhoudt, David N.

CS Laboratory of Supramolecular Chemistry and Technology, University of Twente, Enschede, NL-7500 AE, Neth.

SO Angew. Chem., Int. Ed. (1999), 38(7), 933-937

CODEN: ACIEF5; ISSN: 1433-7851

PB Wiley-VCH Verlag GmbH

DT Journal

LA English

CC 22-12 (Physical Organic Chemistry)

AB H-bonded supramol. self-assembly of a four-story structure comprising three M-C-M'-X-M'-C-M (2) units (M, M' = melamine units attached to opposite arom. rings of calix[4]arene scaffold C, with the internal two melamines M' connected through linker X) and 12 5,5-diethylbarbituric acid (DEB) mols. with each floor consisting of 3 melamines and 3 DEBs arrayed as a rosette is reported. The formation of (2)3(DEB)12 exhibited neg. cooperativity: (2)3(DEB)12 only began to form at ratio 2:DEB > 1:3, and when (2)3(DEB)12 was mixed with the nonlinked M-C-M (1), only two-story structure (1)3(DEB)6 was formed. (2)3(DEB)12 formed stereoselectively as the sss diastereomer (s = staggered orientation of the melamines in the different floors) as opposed to ses (e = eclipsed). Both 2 and 1 exhibit self-sorting: mixts. of 2 and 1 in 1:2 ratio with excess DEB show exclusively the formation of homomeric assemblies (2)3(DEB)12 and (1)3(DEB)6; heteromeric assemblies [e.g., (2)2(1)2(DEB)12] were not obsd.

ST hydrogen bonding self assembly melamine calixarene barbituric acid

nanostructure; supramol melamine calixarene barbituric acid
nanostructure self assembly

IT Hydrogen bond

NMR (nuclear magnetic resonance)

Nanostructures

(H-bonded self-assembly of a 4-story hydrogen-bonded nanostructure comprising calix[4]arene-bound melamine and barbituric acid units)

IT Molecular mechanics

(NMR, MALDI-TOF, and mol. mechanics study of H-bonded self-assembly of a 4-story hydrogen-bonded nanostructure comprising calix[4]arene-bound melamine and barbituric acid units)

IT Metacyclophanes

RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)

(calixarene-based nanostructures; H-bonded self-assembly of a 4-story hydrogen-bonded nanostructure comprising calix[4]arene-bound melamine and barbituric acid units)

IT Cooperative phenomena

(neg.; H-bonded self-assembly of a 4-story hydrogen-bonded nanostructure comprising calix[4]arene-bound melamine and barbituric acid units)

IT Laser desorption mass spectrometry

(photoionization, matrix-assisted; H-bonded self-assembly of a 4-story hydrogen-bonded nanostructure comprising calix[4]arene-bound melamine and barbituric acid units)

IT Diastereomers

(relative energy of staggered and eclipsed diastereomers; H-bonded self-assembly of a 4-story hydrogen-bonded nanostructure comprising calix[4]arene-bound melamine and barbituric acid units)

IT Self-assembly

(stereoselective; H-bonded self-assembly of a 4-story hydrogen-bonded nanostructure comprising calix[4]arene-bound melamine and barbituric acid units)

IT 201288-88-2 225645-70-5 225645-71-6 225645-72-7 225645-73-8

225645-75-0

RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)

(H-bonded self-assembly of a 4-story hydrogen-bonded nanostructure comprising calix[4]arene-bound melamine and barbituric acid units)

IT 57-44-3, 5,5-Diethylbarbituric acid

RL: PEP (Physical, engineering or chemical process); PROC (Process)
(H-bonded self-assembly of a 4-story hydrogen-bonded nanostructure comprising calix[4]arene-bound melamine and barbituric acid units)

IT 225645-61-4P 225645-62-5P

RL: PEP (Physical, engineering or chemical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(H-bonded self-assembly of a 4-story hydrogen-bonded nanostructure comprising calix[4]arene-bound melamine and barbituric acid units)

IT 108-77-0, Cyanuric chloride 109-73-9, Butylamine, reactions 7664-41-7, Ammonia, reactions 51857-17-1 108467-99-8 169436-70-8

RL: RCT (Reactant)

(H-bonded self-assembly of a 4-story hydrogen-bonded nanostructure comprising calix[4]arene-bound melamine and barbituric acid units)

IT 225645-63-6P 225645-64-7P 225645-65-8P 225645-66-9P 225645-67-0P
225645-69-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(H-bonded self-assembly of a 4-story hydrogen-bonded nanostructure comprising calix[4]arene-bound melamine and barbituric acid units)

IT 7440-22-4, Silver, analysis

RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(MALDI labeling agent; H-bonded self-assembly of a 4-story

hydrogen-bonded nanostructure comprising calix[4]arene-bound melamine
and barbituric acid units)

RE.CNT 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Atwood, J; *Nature* 1997, V389, P469
- (2) Caulder, D; *Angew Chem* 1997, V109, P1508
- (3) Caulder, D; *Angew Chem Int Ed Engl* 1997, V36, P1440 CAPLUS
- (4) Conn, M; *Chem Rev* 1997, V97, P1647 CAPLUS
- (5) Crego, M; *Chem Commun* 1998, P1021
- (6) Eliseev, A; *Chem Eur J* 1998, V4, P825 CAPLUS
- (7) Fujita, M; *Angew Chem* 1998, V110, P2192
- (8) Fujita, M; *Angew Chem Int Ed* 1998, V37, P2082 CAPLUS
- (9) Fujita, M; *Nature* 1995, V378, P469 CAPLUS
- (10) Funeria, D; *Chem Eur J* 1997, V3, P99
- (11) Ghadiri, M; *Nature* 1993, V366, P324 CAPLUS
- (12) Hanan, G; *Angew Chem* 1997, V109, P1929
- (13) Hanan, G; *Angew Chem Int Ed Engl* 1997, V36, P1842 CAPLUS
- (14) Huck, W; *Angew Chem* 1996, V108, P1304
- (15) Huck, W; *Angew Chem* 1997, V109, P1046
- (16) Huck, W; *Angew Chem Int Ed Engl* 1996, V35, P1213 CAPLUS
- (17) Huck, W; *Angew Chem Int Ed Engl* 1997, V36, P1006 CAPLUS
- (18) Jacopozzi, P; *Angew Chem* 1997, V109, P665
- (19) Jacopozzi, P; *Angew Chem Int Ed Engl* 1997, V36, P613 CAPLUS
- (20) Jolliffe, K; *Angew Chem* 1998, V110, P1294
- (21) Jolliffe, K; *Angew Chem Int Ed* 1998, V37, P1247 CAPLUS
- (22) Koert, U; *Nature* 1990, V346, P339 CAPLUS
- (23) Kolotuchin, S; *J Am Chem Soc* 1998, V120, P9092 CAPLUS
- (24) Kramer, R; *Proc Natl Acad Sci USA* 1993, V90, P5394 CAPLUS
- (25) Lehn, J; *Supramolecular Chemistry Concepts and Perspectives* 1995
- (26) Mammen, M; *J Am Chem Soc* 1996, V118, P12614 CAPLUS
- (27) Marsh, A; *Chem Commun* 1996, P1527 CAPLUS
- (28) Mascal, M; *Angew Chem* 1996, V108, P2348
- (29) Mascal, M; *Angew Chem Int Ed Engl* 1996, V35, P2204 CAPLUS
- (30) Mathias, J; *Angew Chem* 1993, V105, P1848 CAPLUS
- (31) Mathias, J; *Angew Chem Int Ed Engl* 1993, V32, P1766
- (32) Mathias, J; *J Am Chem Soc* 1994, V116, P4326 CAPLUS
- (33) Piguet, C; *Chem Rev* 1997, V97, P2005 CAPLUS
- (34) Rowan, S; *J Am Chem Soc* 1997, P2578 CAPLUS
- (35) Saalfrank, R; *Angew Chem* 1997, V109, P2596
- (36) Saalfrank, R; *Angew Chem Int Ed Engl* 1997, V36, P2482 CAPLUS
- (37) Sijbesma, R; *Science* 1997, V278, P1601 CAPLUS
- (38) Zimmerman, P; *Adv Mater* 1999, V11, P71 CAPLUS
- (39) Zimmerman, P; *Chem Eur J* 1997, V3, P1823 CAPLUS
- (40) Vreekamp, R; *Angew Chem* 1996, V108, P1306
- (41) Vreekamp, R; *Angew Chem Int Ed Engl* 1996, V35, P1215 CAPLUS
- (42) Whitesides, G; *Acc Chem Res* 1995, V28, P37 CAPLUS
- (43) Whitesides, G; *Science* 1991, V254, P1312 CAPLUS
- (44) Zafar, A; *Tetrahedron Lett* 1996, V37, P2327 CAPLUS
- (45) Zimmerman, S; *Science* 1996, V271, P1095 CAPLUS

L29 ANSWER 9 OF 15 CAPLUS COPYRIGHT 2002 ACS

AN 1998:486746 CAPLUS

DN 129:189003

TI Effect of various cations on the acidity of p-sulfonatocalixarenes

AU Suga, Kosaku; Ohzono, Takuya; Negishi, Makoto; Deuchi, Kouji; Morita, Yutaka

CS Department of Biomolecular Engineering, Tokyo Institute of Technology, Yokohama, 226, Japan

SO Supramol. Sci. (1998), 5(1-2), 9-14
CODEN: SUSCFX; ISSN: 0968-5677

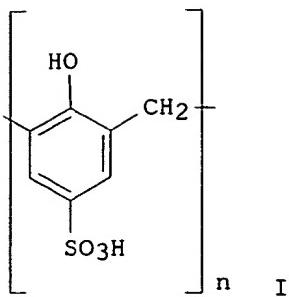
PB Elsevier Science Ltd.

DT Journal

LA English

CC 22-12 (Physical Organic Chemistry)

GI



- AB Photometric and pH-metric titr. curves of p-sulfonatocalixarenes, C[n]ASO₃H (I; n = 4, 6, 8), were measured in the presence of electrolytes of various cations. These titr. curves revealed that the presence of tetramethylammonium (TMA⁺) and tetraethylammonium (TEA⁺) ions largely decreased pKa values for C[n]ASO₃H (n = 4, 6, 8), while alkali and alk.-earth metal cations had small effects. Comparison of the pH dependence of absorption spectra for C[n]ASO₃H (n = 4, 6, 8) with that for corresponding monomer, p-hydroxybenzenesulfonate, indicated that the small values of pKa1 and pKa2 obsd. for C[8]ASO₃H were attributable to dissociation of its OH groups in this compd. The dependence of pKa values for C[4]ASO₃H and p-hydroxybenzenesulfonate on the concn. of NaCl was due to the difference in their activity coeffs. before and after their deprotonation steps estd. on the basis of Debye-Hückel theory. These results suggested that C[n]ASO₃H (n = 4, 6, 8) hardly formed stable complexes with Na⁺ or other alkali metal cations in aq. solns. while C[n]ASO₃H (n = 4, 6, 8) formed stable complexes with tetraalkylammonium cations. It was also shown that the p-sulfonatophenol or p-sulfonatophenoxy units in the calixarene interacted independently with ionic atmospheres formed around the phenol units.
- ST calixarene ionization const cation effect
- IT Alkali metal ions
- IT Alkaline earth ions
- IT RL: PRP (Properties)
(activity effect; effect of various cations on the acidity of p-sulfonatocalixarenes)
- IT Activity (thermodynamic)
(alkali metal cation effects; effect of various cations on the acidity of p-sulfonatocalixarenes)
- IT Ionization constant
(effect of various cations on the acidity of p-sulfonatocalixarenes)
- IT Metacyclophanes
- IT Sulfonic acids, properties
RL: PRP (Properties)
(effect of various cations on the acidity of p-sulfonatocalixarenes)
- IT Quaternary ammonium compounds, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(inclusion effect; effect of various cations on the acidity of p-sulfonatocalixarenes)
- IT Inclusion reaction
(of quaternary ammonium ions; effect of various cations on the acidity of p-sulfonatocalixarenes)
- IT 51-92-3, Tetramethylammonium ion 66-40-0 14127-61-8, Calcium ion, properties 17341-25-2, Sodium ion, properties 22541-12-4, Barium ion, properties 24203-36-9, Potassium ion, properties
RL: PRP (Properties)
(effect of various cations on the acidity of p-sulfonatocalixarenes)
- IT 102088-39-1 112269-92-8 137407-62-6
RL: PRP (Properties)
(ionization const. in presence of electrolytes; effect of various

cations on the acidity of p-sulfonatocalixarenes)
IT 96107-96-9 105190-41-8 110242-20-1
RL: PRP (Properties)
(ionization const.; effect of various cations on the acidity
of p-sulfonatocalixarenes)
IT 825-90-1, Sodium p-hydroxybenzenesulfonate
RL: PRP (Properties)
(monomer unit; effect of various cations on the acidity of
p-sulfonatocalixarenes)

L29 ANSWER 10 OF 15 CAPLUS COPYRIGHT 2002 ACS
AN 1998:151718 CAPLUS
DN 128:252015
TI Complexes of p-tert-butylcalix[5]arene with lanthanides: synthesis,
structure and photophysical properties
AU Charbonniere, Loic J.; Balsiger, Christian; Schenk, Kurt J.; Bunzli,
Jean-Claude G.
CS Institute Inorganic Analytical Chemistry, BCH, University Lausanne,
Lausanne, CH-1015, Switz.
SO J. Chem. Soc., Dalton Trans. (1998), (3), 505-510
CODEN: JCDTBI; ISSN: 0300-9246
PB Royal Society of Chemistry
DT Journal
LA English
CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 68, 73, 74, 75
AB Spectrophotometric pKa detn. for p-tert-butylcalix[5]arene (H₅L) in
acetonitrile (pK_{a1} = 11.5 .+-. 0.7, pK_{a2} = 15.4 .+-. 1.0 at 298 K)
evidenced both intra- and inter-mol. stabilization of the deprotonated
forms. The dimeric complexes [Ln₂(H₂L)₂(DMSO)₄] (Ln = Eu^{III}, Gd^{III}, or
Tb^{III}) were isolated from THF in the presence of NaH as base. A
single-crystal anal. of [Eu₂(H₂L)₂(DMSO)₄].cntdot.10THF (triclinic space
group P.hivin.1, R₁ = 0.112) showed the deformation of the cone
conformation of the calixarene upon complexation and coordination of DMSO
mols. by inclusion through the hydrophobic cavity of the ligand. A
photophys. study revealed a total quenching of the metal
luminescence by a ligand-to-metal charge-transfer state in the case of
Eu^{III} while luminescence of Tb^{III} is sensitized (quantum yield in THF:
5.1%). The temp.-dependent lifetime of Tb^{III} is analyzed in terms of a
potential metal-to-ligand back-transfer process.
ST crystal structure europium butylcalixarene DMSO dimeric; europium
butylcalixarene DMSO dimeric prepн structure; rare earth butylcalixarene
prepн structure photophysics; calixarene rare earth prepн
structure photophysics; photophysics rare earth
butylcalixarene DMSO dimeric; luminescence rare earth butylcalixarene DMSO
dimeric; conformation europium butylcalixarene DMSO dimeric complex;
acidity const calixarene
IT Dissociation constant
(acidity const.; of butylcalix[5]arene)
IT Rare earth alcohol complexes
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(calixarene; prepн., crystal structure and electronic and luminescence
spectra of rare earth butylcalix[5]arene DMSO dimeric complexes)
IT UV and visible spectra
(charge transfer; of rare earth butylcalix[5]arene DMSO dimeric
complexes)
IT Conformation
Crystal structure
Luminescence quenching
Molecular structure
(of europium butylcalix[5]arene DMSO dimeric complex)
IT Luminescence
(of rare earth butylcalix[5]arene DMSO dimeric complexes)
IT 81475-22-1, p-tert-Butylcalix[5]arene
RL: PRP (Properties); RCT (Reactant)
(acidity consts. and complexation with rare earth metals)
IT 204931-37-3P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and crystal structure)

IT 204931-35-1P 204931-38-4P 204931-39-5P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and electronic and luminescence spectra)

L29 ANSWER 11 OF 15 CAPLUS COPYRIGHT 2002 ACS

AN 1998:88737 CAPLUS

DN 128:102474

TI **Photochemically size-controllable dendrimers including a 1,3-alternate calix[4]arene as a core and azobenzene moieties as branches**

AU Nagasaki, Takeshi; Noguchi, Akio; Matsumoto, Takeo; Tamagaki, Seizo;
Ogino, Kenji

CS Fac. Eng., Osaka City Univ., Osaka, 558, Japan

SO An. Quim. Int. Ed. (1997), 93(5), 341-346

CODEN: AQIEFZ

PB Springer-Verlag Iberica

DT Journal

LA English

CC 35-5 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36

AB **Photo-responsive dendrimers which involve a 1,3-alternate conformer of calix[4]arene as a core and azobenzene skeletons as branches were synthesized and characterized. The particle size of the photo-responsive mols. is controllable by exposure to variable levels of UV or visible light and darkness; light induces contraction of particles and broadens the polydispersity. Presumably the contracted particles have higher content of cis azobenzene and larger steric hindrance than the expanded trans forms. Expansion and contraction were monitored using dynamic light scattering and gel permeation chromatog.**

ST **calixarene photoresponsive dendrimer prepn photoisomerization; azobenzene calixarene particle size control light**

IT Light-sensitive materials
Particle size
 Photoisomerization
 Steric hindrance
 (biochem. control of particle size of dendrimers of 1,3-alternate calix[4]arene core and azobenzene deriv. branches)

IT Metacyclophanes
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process)
 (biochem. control of particle size of dendrimers of 1,3-alternate calix[4]arene core and azobenzene deriv. branches)

IT Polyethers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (polyamide-, dendrimers; biochem. control of particle size of dendrimers of 1,3-alternate calix[4]arene core and azobenzene deriv. branches)

IT Dendritic polymers
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (polyamides, polyether; biochem. control of particle size of dendrimers of 1,3-alternate calix[4]arene core and azobenzene deriv. branches)

IT Polyamides, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (polyether-, dendrimers; biochem. control of particle size of dendrimers of 1,3-alternate calix[4]arene core and azobenzene deriv. branches)

IT 281-54-9D, Calix[4]arene, coupling products with azobenzene dendrimers
RL: PRP (Properties); RCT (Reactant)
 (core and fourth generation; biochem. control of particle size of dendrimers of 1,3-alternate calix[4]arene core and azobenzene deriv. branches)

IT 194611-45-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(first generation; **photochem.** control of particle size of dendrimers of 1,3-alternate calix[4]arene core and azobenzene deriv. branches)

IT 76-05-1, Trifluoroacetic acid, reactions 96-32-2, Methyl bromoacetate 2497-38-3, 4-Carboxy-4'-hydroxyazobenzene 7719-09-7, Thionyl chloride 24424-99-5
RL: RCT (Reactant)
(**photochem.** control of particle size of dendrimers of 1,3-alternate calix[4]arene core and azobenzene deriv. branches)

IT 194611-44-4P, 4-[N,N-Bis(2-tert-butoxycarbonylaminoethyl)amino]carbonyl-4'-hydroxyazobenzene 194611-47-7P 194611-49-9P 194611-51-3P 194611-53-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(**photochem.** control of particle size of dendrimers of 1,3-alternate calix[4]arene core and azobenzene deriv. branches)

IT 194611-50-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(second generation; **photochem.** control of particle size of dendrimers of 1,3-alternate calix[4]arene core and azobenzene deriv. branches)

IT 194611-52-4DP, coupling products with 1,3-alternate calix[4]arene
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(third generation; **photochem.** control of particle size of dendrimers of 1,3-alternate calix[4]arene core and azobenzene deriv. branches)

L29 ANSWER 12 OF 15 CAPLUS COPYRIGHT 2002 ACS

AN 1996:541137 CAPLUS

DN 125:315428

TI Synthesis and Characterization of Novel Acyclic, Macrocyclic, and Calix[4]arene Ruthenium(II) Bipyridyl Receptor Molecules That Recognize and Sense Anions

AU Szemes, Fridrich; Hesek, Dusan; Chen, Zheng; Dent, Simon W.; Drew, Michael G. B.; Goulden, Alistair J.; Graydon, Andrew R.; Grieve, Alan; Mortimer, Roger J.; et al.

CS Inorganic Chemistry Laboratory, University of Oxford, Oxford, OX1 3QR, UK

SO Inorg. Chem. (1996), 35(20), 5868-5879

CODEN: INOCAJ; ISSN: 0020-1669

DT Journal

LA English

CC 79-3 (Inorganic Analytical Chemistry)
Section cross-reference(s): 28, 29, 75

AB The Lewis **acidic** redox-active and **photoactive** ruthenium(II) bipyridyl moiety in combination with amide (CO-NH) groups was incorporated into acyclic, macrocyclic, and lower rim calix[4]arene structural frameworks to produce a new class of anion receptor with the dual capability of sensing anionic guest species via electrochem. and optical methodologies. Single-crystal x-ray structures of (1)Cl and (11)H₂PO₄ reveal the importance of hydrogen bonding to the overall anion complexation process. In the former complex, six hydrogen bonds (two amide and four C-H groups) stabilize the Cl⁻ anion and three hydrogen bonds (two amide and one calix[4]arene hydroxyl) effect H₂PO₄⁻ complexation with 11. ¹H NMR titrn. studies in deuterated DMSO solns. reveal these receptors form strong and, in the case of the macrocyclic 5 and calix[4]arene-contg. receptor 11, highly selective complexes with H₂PO₄⁻. Cyclic and square-wave voltammetric studies demonstrated these receptors to electrochem. recognize Cl⁻, Br⁻, H₂PO₄⁻, and HSO₄⁻ anions. The calix[4]arene anion receptor 11 selectively electrochem. senses H₂PO₄⁻ in the presence of 10-fold excess amts. of HSO₄⁻ and Cl⁻. Fluorescence emission spectral recognition of H₂PO₄⁻ in DMSO solns. is displayed by 3, 5, and 11.

ST calixarene ruthenium bipyridyl complex anion receptor; macrocyclic ruthenium bipyridyl anion receptor; acyclic ruthenium bipyridyl anion receptor

IT Crystal structure
(synthesis and characterization of novel acyclic, macrocyclic, and calix[4]arene ruthenium(II) bipyridyl receptor mols. for recognition

and sensing of anions)

IT Voltammetry
(cyclic, anion recognition and sensing by cyclic and square-wave voltammetry using calix[4]arene-contg. receptors)

IT Spectrochemical analysis
(fluorometric, anion recognition and sensing by fluorescence using calix[4]arene-contg. receptors)

IT Cyclophanes
RL: ARG (Analytical reagent use); PNU (Preparation, unclassified); PRP (Properties); ANST (Analytical study); PREP (Preparation); USES (Uses)
(meta-, synthesis and characterization of novel acyclic, macrocyclic, and calix[4]arene ruthenium(II) bipyridyl receptor mols. for recognition and sensing of anions)

IT Voltammetry
(square-wave, anion recognition and sensing by cyclic and square-wave voltammetry using calix[4]arene-contg. receptors)

IT 14066-20-7 14996-02-2, Sulfate (HSO₄1-) 16887-00-6, Chloride, analysis
24959-67-9, Bromide, analysis
RL: ANT (Analyte); ANST (Analytical study)
(anion recognition and sensing by cyclic and square-wave voltammetry using calix[4]arene-contg. receptors)

IT 182864-42-2P 183071-86-5P
RL: ARG (Analytical reagent use); PNU (Preparation, unclassified); PRP (Properties); ANST (Analytical study); PREP (Preparation); USES (Uses)
(crystal structure and characterization of novel acyclic, macrocyclic, and calix[4]arene ruthenium(II) bipyridyl receptor mols. for recognition and sensing of anions)

IT 152387-93-4P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation)
(ligand; synthesis and characterization of novel acyclic, macrocyclic, and calix[4]arene ruthenium(II) bipyridyl receptor mols. for recognition and sensing of anions)

IT 121702-02-1P 182864-33-1P 182864-35-3P
RL: ARG (Analytical reagent use); PNU (Preparation, unclassified); ANST (Analytical study); PREP (Preparation); USES (Uses)
(synthesis and characterization of novel acyclic, macrocyclic, and calix[4]arene ruthenium(II) bipyridyl receptor mols. for recognition and sensing of anions)

IT 152465-62-8P 156976-29-3P 156976-33-9P 182864-25-1P 182864-27-3P
182864-29-5P
RL: ARG (Analytical reagent use); PNU (Preparation, unclassified); PRP (Properties); ANST (Analytical study); PREP (Preparation); USES (Uses)
(synthesis and characterization of novel acyclic, macrocyclic, and calix[4]arene ruthenium(II) bipyridyl receptor mols. for recognition and sensing of anions)

IT 121633-89-4P **154204-25-8P**, 5,11,17,23-Tetrakis(1,1-dimethylethyl)-25,27-bis(2-aminoethoxy)-26,28-dihydroxycalix[4]arene
156834-21-8P 156834-23-0P, 4,4'-Bis((2-methoxyethyl)carbamoyl)-2,2'-bipyridine 182864-30-8P 182864-31-9P 182864-36-4P 182864-37-5P
182864-38-6P 182864-39-7P 182864-40-0P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation)
(synthesis and characterization of novel acyclic, macrocyclic, and calix[4]arene ruthenium(II) bipyridyl receptor mols. for recognition and sensing of anions)

IT 104-94-9, p-Anisidine 109-85-3, 2-Methoxyethylamine 110-86-1, Pyridine, reactions 121-44-8, reactions 632-02-0, 3-Chloropropyl p-tosylate 929-59-9, 2,2'-(Ethylenedioxy)diethylamine 1122-58-3, 4-(Dimethylamino)pyridine 6315-89-5, 4-Aminoveratrole 7328-91-8, 2,2-Dimethyl-1,3-diaminopropane 72460-28-7, 4,4'-Bis(chlorocarbonyl)-2,2'-bipyridine
RL: RCT (Reactant)
(synthesis and characterization of novel acyclic, macrocyclic, and calix[4]arene ruthenium(II) bipyridyl receptor mols. for recognition and sensing of anions)

DN 125:154141
TI Photophysical properties of lanthanide dinuclear complexes with p-nitro-calix[8]arene
AU Buenzli, Jean-Claude G.; Ihringer, Frederic
CS Universite de Lausanne, Institut de Chimie Minerale et Analytique, BCH
1402, Lausanne, CH-1015, Switz.
SO Inorg. Chim. Acta (1996), 246(1-2), 195-205
CODEN: ICHAA3; ISSN: 0020-1693
DT Journal
LA English
CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 73
AB The ligand p-nitrocalix[8]arene, n-LH8, was synthesized and its acidity consts. were detd. at 25.degree.C in H₂O/THF 70/30 vol./vol. by a potentiometric method: pKa1 < 0, pKa2 = 2.6 .+-. 0.1, pKa3 = 7.2 .+-. 0.2, pKa4 = 10.2 .+-. 0.2, and pKa5-8 > 12. Upon reaction of n-LH8 with lanthanide nitrates in DMF contg. an excess of triethylamine, lanthanide dinuclear complexes are isolated whose elemental analyses correspond to the formula [Ln₁Ln₂(n-LH₂)(DMF)_x](DMF)_y(EtOH)_z. Solvation is difficult to control and different crystn. or drying conditions yield compds. with different solvation. When two Ln(III) ions are added to the soln., compds. are isolated which contain a mixt. of the homo- and heterodinuclear species. A small size discriminating effect is evidenced, larger Ln(III) ions being apparently favored. Anal. of the luminescence of the Eu(5D0) level reveals the following features: (i) the series of complexes with Ln₁ = Eu, and Ln₂ = Nd, Gd, Tb, Ho appears to be approx. isostructural, (ii) the two metal ion sites are similar and possess a low site symmetry, and (iii) the Eu(III) environment is not well defined, either because the compds. behave like 'glasses', with ligand mols. adopting several comparable configurations, or because the solvent mols. completing the coordination polyhedron of the Eu(III) ion occupy statistical sites rendering the structure somewhat disordered. A photophys. study of the ligand n-LH8, of the homodinuclear complexes with Ln₁ = Ln₂ = Eu, Gd, Tb, Lu and of the heterodinuclear complexes has been performed. Compared to the situation for complexes with p-tert-butylcalix[8]arene, the ligand excited states are shifted to lower energy, henceforth the ligand-to-Tb(III) energy transfer no more occurs while the transfer to the Eu(III) ion is favored, the Eu(5D0) level and the ligand states being almost in resonance. The replacement of the p-tert-Bu groups by the electron-attracting nitro groups shifts the ligand-to-metal charge-transfer (LMCT) state of the Eu-contg. compds. to higher energy, which reduces the amt. of mixing between the Eu(7F) and the LMCT states, resulting in a less efficient quenching of the Eu(5D0) luminescence and in a less enhanced 5D0 .rarew. 7F0 transition. Nevertheless, the latter still exhibits an unusually large oscillator strength (ca. 10⁻⁷, .epsilon. = 0.84 l-mol-1-cm-1). Europium-to-lanthanide (Ln = Nd, Ho) energy transfer processes in heterodinuclear compds. allow one to est. the intermol. Eu-Ln distance to 10.3-10.5 .ANG., a value close to that reported for the p-tert-butylcalix[8]arene complexes. In conclusion, this study demonstrates the potential of calixarenes as host mols. for spectroscopically active metal ions since a simple modification of the para-substituents induces large differences in the photophys. properties of the dinuclear lanthanide complexes.
ST photophys property lanthanide dinuclear complex nitrocalixarene
IT Energy level splitting
Luminescence
Ultraviolet and visible spectra
 (photonphys. properties of lanthanide dinuclear complexes with p-nitro-calix[8]arene)
IT Rare earth compounds
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
 (complexes, dinuclear; photonphys. properties of lanthanide dinuclear complexes with p-nitro-calix[8]arene)
IT Energy transfer
 (photochem., photonphys. properties of lanthanide

dinuclear complexes with p-nitro-calix[8]arene)

IT 109081-46-1P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(in prepn. of lanthanide dinuclear complexes with p-nitro-calix[8]arene)

IT 109081-46-1D, europium and neodymium complexes
RL: RCT (Reactant)
(photophys. properties of lanthanide dinuclear complexes)

IT 7440-00-8D, Neodymium, calix[8]arene complex, sold soln. with rare earth calixarene complexes 7440-53-1D, Europium, calix[8]arene complex, sold soln. with rare earth calixarene complexes 7440-54-2D, Gadolinium, calix[8]arene complex, sold soln. with rare earth calixarene complexes 7440-60-0D, Holmium, calix[8]arene complex, sold soln. with rare earth calixarene complexes 180140-71-0D, solid solns. with gadolinium and holmium and neodymium and terbium complexes 180140-72-1 180140-73-2 180140-74-3D, solid soln. with europium complex 180140-75-4 180140-76-5 180140-77-6 180140-78-7 180140-79-8D, solid soln. with europium complex 180140-81-2D, solid soln. with europium complex
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(photophys. properties of lanthanide dinuclear complexes with p-nitro-calix[8]arene)

IT 68-12-2, DMF, properties 7440-27-9D, Terbium, calix[8]arene complex, sold soln. with rare earth calixarene complexes
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(photophys. properties of lanthanide dinuclear complexes with p-nitro-calix[8]arene contg.)

IT 68971-82-4
RL: RCT (Reactant)
(reaction with nitric acid in prepn. of p-nitro-calix[8]arene)

L29 ANSWER 14 OF 15 CAPLUS COPYRIGHT 2002 ACS
AN 1995:65556 CAPLUS
DN 122:162770

TI Photosynthetic membranes. Part 32. Transport properties of alkali metal cations through photografted cryptand membranes immobilizing calix[8]arene

AU Bellobono, Ignazio Renato; Righetto, Luca; D'Ambrosio, Andrea; Azimonti, Giovanna

CS Department Physical Chemistry and Electrochemistry, University Milan, Milan, I-20133, Italy

SO Process Technol. Proc. (1994), 11(SEPARATION TECHNOLOGY), 885-93
CODEN: PTPREM; ISSN: 0921-8610

DT Journal

LA English

CC 38-3 (Plastics Fabrication and Uses)

AB Membranes immobilizing 1.00 .times. 10-3 - 4.50 .times. 10-2 mol. Kg-1 of calix[8]arene have been prep'd., by photografting a 1:3 wt/wt mixt. of a com. acrylate polyester (Ebecryl 810) and tetraethyleneglycol diacrylate, photoinitiated with 6 wt % of 1,2-diphenyl-2,2-dimethoxyethanone and photocatalyzed with 3.5 wt % of oxodi(8-quinolyloxo) vanadic (V) acid allyl ester, onto an ultrafiltration cellulose membrane immobilizing 20 % of active carbon in the photochem. grafted layer. Solns. contg. 1.00 .times. 10-2, 6.00 .times. 10-2, or 1.0 .times. 10-1 M LiOH, NaOH, KOH, RbOH, or CsOH were recirculated on the microporous side of the support, and a 0.05 M formate/formic acid buffer at const. ionic strength and pH 3.5 on the side of the grafted cryptand membrane. Transport rates of alkali metal ions were measured at 20.+-.1.degree.C as a function of calixarene (cc) and alkali metal hydroxides (cMet) concns., as well as of geometric surface area of the membrane. Transport rates expressed as mol alkali metal ion transferred per unit time and per unit transmembrane pressure difference, were found to be directly proportional to cc, independently on cMet in soln. and surface area of membrane. The proportionally consts.,

r, are discussed in terms of selectivity and facilitated transport mechanism, envisaged by this kind of behavior. The values of r also compared with parameters obtained by exptl. data reported in the literature for the three-phase liq./liq. extn. process.

ST photografted cryptand membrane immobilizing calixarene; acrylate polyester photografted cryptand membrane; transport alkali metal cryptand membrane

IT Membranes

(transport properties of alkali metal cations through photografted cryptand membranes immobilizing calix[8]arene)

IT Cations

RL: PEP (Physical, engineering or chemical process); PROC (Process)

(transport properties of alkali metal cations through photografted cryptand membranes immobilizing calix[8]arene)

IT 82040-66-2, Calix[8]arene

RL: NUU (Other use, unclassified); USES (Uses)

(transport properties of alkali metal cations through photografted cryptand membranes immobilizing calix[8]arene)

IT 7439-93-2, Lithium, processes 7440-09-7, Potassium, processes

7440-17-7, Rubidium, processes 7440-23-5, Sodium, processes 7440-46-2,

Cesium, processes

RL: PEP (Physical, engineering or chemical process); PROC (Process)

(transport properties of alkali metal cations through photografted cryptand membranes immobilizing calix[8]arene)

IT 161574-36-3

RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)

(transport properties of alkali metal cations through photografted cryptand membranes immobilizing calix[8]arene)

L29 ANSWER 15 OF 15 CAPLUS COPYRIGHT 2002 ACS

AN 1994:19221 CAPLUS

DN 120:19221

TI Electrophotographic toners containing charge-controlling resin and calixarene compound

IN Ueda, Hideaki

PA Minolta Camera Kk, Japan

SO Jpn. Kokai Tokkyo Koho, 13 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03G009-097

ICS G03G009-08

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|-------------|------|----------|-----------------|----------|
| PI | JP 05119535 | A2 | 19930518 | JP 1991-277525 | 19911024 |
| GI For diagram(s), see printed CA Issue. | | | | | |
| AB The neg. charging toners contain a thermoplastic resin, a colorant, and 0.1-10 parts/100 parts thermoplastic resin of a charge-controlling resin prep'd. by copolymerg. 1-20 wt.% of the total monomers of CH ₂ :CR ₁ [CONHCR ₂ R ₃ (CH ₂) _n SO ₃ H] (R ₁ = H, Me; R ₂₋₃ = H, C ₁ -C ₁₀ alkyl; n = 1-10) with .gt;1 vinyl monomer(s) selected from styrene, (meth)acrylate esters, and 0.1-10 parts/100 parts thermoplastic resin of a calixarene compd. The toners show good charging properties and provide high-quality images without fog in high-speed process. Thus, a styrene-acrylic resin, MA 100 (carbon black), Viscol 660P (polypropylene) I, and styrene-2-acrylamide-2-methylpropanesulfonic acid copolymer were kneaded, pulverized, and mixed with SiO ₂ to give a toner, which was mixed with a carrier to give a developer. | | | | | |
| ST toner acrylamide copolymer electrophotog; sulfonic acid copolymer toner electrophotog; charge controlling agent toner electrophotog; calixarene toner electrophotog | | | | | |
| IT Electrophotographic developers
(toners, contg. charge-controlling resins and calixarene compds.) | | | | | |

IT 109081-46-1 151599-80-3 151599-81-4 151599-82-5
RL: USES (Uses)
(charge-controlling agent, electrophotog. **photoreceptor**
using)
IT 51121-85-8 61910-75-6
RL: USES (Uses)
(charge-controlling resin, electrophotog. developer toner contg.)

=> d his

(FILE 'HOME' ENTERED AT 10:34:31 ON 23 JAN 2002)

FILE 'CA' ENTERED AT 10:34:40 ON 23 JAN 2002

L1 2 S PFEIFFER?/AU AND CALIXARENE

FILE 'STNGUIDE' ENTERED AT 10:35:40 ON 23 JAN 2002

L2 FILE 'REGISTRY' ENTERED AT 10:38:03 ON 23 JAN 2002
220 S CALIX AND ARENE

FILE 'CAPLUS' ENTERED AT 10:38:37 ON 23 JAN 2002

L3 97 S L2 AND PHOTO?
L4 2 S L3 AND (E BEAM OR ELECTRON BEAM)
L5 110 S L2 AND HYDROXY
L6 3 S L3 AND HYDROXY
L7 3 S L6 NOT L4
L8 92 S L3 NOT L7 NOT L4
L9 4 S L8 AND CHEM? (5A)AMPLI?
L10 88 S L8 NOT L9
L11 0 S L10 AND GLYCOLURIL
L12 3 S L10 AND CROSSLINK?
L13 85 S L10 NOT L12
L14 4 S L13 AND PHOTORESIST?
L15 81 S L13 NOT L14
L16 0 S L15 AND LITHOGRAPH?
L17 1 S L15 AND PHOTOCUR?
L18 3 S L6 NOT L17
L19 0 S L18 AND PHOTOACID
L20 0 S L18 AND ACID?
L21 0 S L18 AND RESIST
L22 0 S L16 NOT L17
L23 80 S L15 NOT L17
L24 3 S L23 AND PHOTOACID
L25 77 S L23 NOT L24
L26 5 S L25 AND RESIST?
L27 72 S L25 NOT L26
L28 0 S L27 AND LITHOGRAPH?
L29 15 S L27 AND ACID?

=> s l27 not l29

L30 57 L27 NOT L29

=> s l30 and glycoluril

355 GLYCOLURIL

L31 0 L30 AND GLYCOLURIL

=> d ti l30 1-5

L30 ANSWER 1 OF 57 CAPLUS COPYRIGHT 2002 ACS

TI preparation of a hydrogen-bonded noncovalent supramol. assembly of
zinc(II) porphyrin complex-substituted calixarene and benzoquinone as a
nonconjugated electron-transporting system

L30 ANSWER 2 OF 57 CAPLUS COPYRIGHT 2002 ACS

TI Chemical detection based on adsorption-induced and **photoinduced**
stresses in microelectromechanical systems devices

L30 ANSWER 3 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Synthesis of dithiane-based **photolabile** molecular systems

L30 ANSWER 4 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Investigation of the interaction of calixarene (host) and neutral benzotrifluoride (guest). Comparison of luminescence characteristics of calixarenes with results of model calculations relating to complex formation

L30 ANSWER 5 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI The inclusion complexation of dye guest molecules with water-soluble calixarene

=> d ti 130 6-57

L30 ANSWER 6 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI C₆₀ Fullerene-based materials as singlet oxygen O₂(1.DELTA.g)
photosensitizers: a time-resolved near-IR luminescence and optoacoustic study

L30 ANSWER 7 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Second-order nonlinear optical properties of amorphous calix[4]arenes containing carbazole derivatives

L30 ANSWER 8 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Host-guest interaction of calixarene molecules with neutral benzotrifluorides Comparison of luminescence spectral data with results of model calculations relating to complex formation

L30 ANSWER 9 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Preparation of metal complex cations useful for asymmetric synthesis of metal complexes

L30 ANSWER 10 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Effect of addition of calix[n]arenes on **photooxygenation** of 4,5-diphenylimidazolones

L30 ANSWER 11 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI The electrochemical behavior of (C₇₀)₂-p-tert-butylcalix[6]arene complex film

L30 ANSWER 12 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Lanthanide complexes with a p-tert-butylcalix[4]arene fitted with phosphinoyl pendant arms

L30 ANSWER 13 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Characterization of caged cholinergic ligands. Sulfonated calix[4]arene inclusion complexes. [Erratum to document cited in CA131:39849]

L30 ANSWER 14 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Characterization of caged cholinergic ligands. Sulfonated calix[4]arene inclusion complexes

L30 ANSWER 15 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Calixochromes. Syntheses, structure, and supramolecular effects of biphotochromic calix[4]arenes

L30 ANSWER 16 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI A new calix[4]arene-based fluorescent sensor for sodium ion

L30 ANSWER 17 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Tungsten-Tungsten Multiple-Bond Functionalities Supported by a Polyoxo Surface Modeled by Calix[4]arene

L30 ANSWER 18 OF 57 CAPLUS COPYRIGHT 2002 ACS

- TI Diffuse reflectance laser-flash photolytic study of aromatic ketones with calixarene solid matrixes
- L30 ANSWER 19 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI High yield preparation of a novel tetrakis[ruthenium tris(bipyridine)]calix[6]arene derivative with good diastereomeric purity
- L30 ANSWER 20 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Laser photolysis of p-tert-butylcalix[4]arene in cyclohexane.
- L30 ANSWER 21 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Multifunctional hyper-structured molecules
- L30 ANSWER 22 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI A photodecomplexation study of the NaPh4B and NaI complexes of p-tert-butylcalix[4]arene tetraethyl ester and tetramethyl ketone
- L30 ANSWER 23 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Inclusion complex of calix[8]arene-C60: photophysical properties and its behavior as singlet molecular oxygen sensitizer in the solid state
- L30 ANSWER 24 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Ion transport across membranes prepared by gel crystallization
- L30 ANSWER 25 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI A New Calix[4]arene-Based Barium Precursor for BaO-TiO₂ Thin Film Deposition
- L30 ANSWER 26 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Light-switched metal-tunneling across a pi.-basic tube of 1,3-alternate-calix[4]arenes
- L30 ANSWER 27 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Synthesis and complexation properties towards alkali cations of a photosensitive azo-modified calix[4]crown ether in the 1,3-alternate conformation
- L30 ANSWER 28 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Synthesis, characterization and UV-Vis properties of azocalix[4]crowns
- L30 ANSWER 29 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Fluorescence and photodimerization of a calix[4]arene-based 2-naphthoate
- L30 ANSWER 30 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Molecular architecture of calixarenes and their self-assembled mono- and multi-layers for nonlinear optical (NLO) applications
- L30 ANSWER 31 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI A novel host molecule p-[1-(4-hydroxyphenyl)-1-methylethyl]calix[8]arene. Synthesis and complexation properties in nonaqueous polar solution
- L30 ANSWER 32 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Photodegradation of calixarenes
- L30 ANSWER 33 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Solvent extraction of divalent palladium and platinum from aqueous solutions of their chloro complexes using an N,N-dimethyldithiocarbamoylethoxy substituted calix[4]arene
- L30 ANSWER 34 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Synthesis and Photophysical Properties of a Novel Water-Soluble, Calixarene-Containing Polymer
- L30 ANSWER 35 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Abnormal reaction of an aryl azide confined in a calix[6]arene skeleton

- L30 ANSWER 36 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Photopolymerization of methyl methacrylate initiated by benzoin derivatives
- L30 ANSWER 37 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Design, Synthesis, and Characterization of Three Kinds of π -Cross-Conjugated Hexacarbenes with High-Spin ($S = 6$) Ground States
- L30 ANSWER 38 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Processing of silver halide photographic material and fixing solution for it
- L30 ANSWER 39 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Synthesis and luminescence of Eu³⁺ and Tb³⁺ complexes with novel calix[4]arene ligands carrying 2,2'-bipyridine subunits
- L30 ANSWER 40 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Molecular recognition of 2,6-naphthoquinone by 5,11,17,23,29,35-hexa-tert-butyl-37,38,39,40,41,42-hexahydroxycalix(6)arene
- L30 ANSWER 41 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Electric Field Effects of Photogenerated Ion Pairs on Nearby Molecules: A Model for the Carotenoid Band Shift in Photosynthesis
- L30 ANSWER 42 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Ion-selective electrode using photosensitive calixarene derivatives
- L30 ANSWER 43 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Light-responsive compositions containing calix[4]arene derivatives for optical recording media
- L30 ANSWER 44 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Tunable chemical sensors: light-switched ion selective electrodes on the basis of a photoresponsive calix[4]arene
- L30 ANSWER 45 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Method for processing silver halide photographic material
- L30 ANSWER 46 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Light-switched chromophoric device designed from an ionophoric calix[4]arene
- L30 ANSWER 47 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Complexes of lanthanoid salts with macrocyclic ligands. 41. Photophysical properties of lanthanide dinuclear complexes with p-tert-butylcalix[8]arene
- L30 ANSWER 48 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Developer solution for silver halide photographic material containing cyclic phenol oligomer and processing method
- L30 ANSWER 49 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Spot prevention in silver halide photographic material
- L30 ANSWER 50 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Light-responsive metal encapsulation in calix[4]arene
- L30 ANSWER 51 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Flow-injection analysis with tetrameric calixarene-based potentiometric detection
- L30 ANSWER 52 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Comparison of a calixarene-based ion-selective electrode with two automated analyzers for the clinical determination of sodium in blood plasma

L30 ANSWER 53 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Encapsulation of lanthanide ions in calixarene receptors. A strongly luminescent terbium(3+) complex

L30 ANSWER 54 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Silver halide color photographic material

L30 ANSWER 55 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Calix[n]arenes - new light stabilizers for polyolefins

L30 ANSWER 56 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Phenolic calixarenes as light stabilizers for polymers and low-molecular weight materials

L30 ANSWER 57 OF 57 CAPLUS COPYRIGHT 2002 ACS
TI Preparation of 4-tert-butyloxocalix[n]arenes and their properties as UV-absorbers

=> d all 130 57,20

L30 ANSWER 57 OF 57 CAPLUS COPYRIGHT 2002 ACS
AN 1985:505708 CAPLUS
DN 103:105708
TI Preparation of 4-tert-butyloxocalix[n]arenes and their properties as UV-absorbers
AU Ninagawa, Akira; Cho, Kazuhiro; Matsuda, Haruo
CS Fac. Eng., Osaka Univ., Suita, 565, Japan
SO Makromol. Chem. (1985), 186(7), 1379-85
CODEN: MACEAK; ISSN: 0025-116X
DT Journal
LA English
CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 25
GI For diagram(s), see printed CA Issue.
AB The calixarenes I ($x = 3$, $y = 1$) (II) [98085-82-6], I ($x = 5$, $y = 1$) (III) [98085-83-7], and octa-tert-butyl-octahydroxy-trioxocalix[8]arene (IV) were prep'd. from 4-tert-butyloxocalix[4]-, [6]- and [8]-arenes from 4-tert-butylphenol. 5,5'-Di-tert-butyl-2,2'-dihydroxybenzophenone (V) [25446-98-4] was prep'd. via 5,5'-di-tert-butyl-2,2'-dimethoxybenzophenone (VI) [98085-85-9] from bis(5-tert-butyl-2-methoxyphenyl)methane [98085-84-8]. 1,4-Dioxane solns. of II, III, IV, V, and VI were irradiated. The photostability of III and IV in dioxane was better than that of II, V, or VI. A PVC [9002-86-2] film contg. 0.06 mmol III/g was most stable to photooxidn.
ST PVC light stabilizer calixarene; benzophenone dibutyldihydroxy light stabilizer
IT Light stabilizers
(oxocalixarenes, prepn. and activity of)
IT 25446-98-4P 68971-82-4DP, oxidized 98085-82-6P 98085-83-7P
98085-85-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(light stabilizer, prepn. and properties of)
IT 9002-86-2
RL: USES (Uses)
(light stabilizers for, calixarenes as)
IT 60705-62-6 78092-53-2 98085-84-8
RL: RCT (Reactant)
(oxidn. of)

L30 ANSWER 20 OF 57 CAPLUS COPYRIGHT 2002 ACS
AN 1998:779992 CAPLUS
DN 130:117202
TI Laser photolysis of p-tert-butylcalix[4]arene in cyclohexane
AU Yuan, Lihua; Yao, Side; Zhauang, Zhihao; Lin, Nianyun
CS Department of Chemistry, Sichuan Union University, Chengdu, 610064, Peop. Rep. China

SO Huaxue Yanjiu Yu Yingyong (1998), 10(3), 288-290
CODEN: HYYIFM; ISSN: 1004-1656
PB Huaxue Yanjiu Yu Yingyong Bianjibu
DT Journal
LA Chinese
CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
AB Laser flash photolysis study of p-tert-butylcalix[4]arene in cyclohexane by using a KrF laser radiation was carried out at room temp. Triplet state of the calix[4]arene was obsd. for the first time in absorption spectra. A mechanism of the formation of the triplet and the calixarene radical was proposed based on kinetic anal.
ST calixarene cyclohexane laser photolysis triplet state
IT Triplet state
 (in relation to laser photolysis of tert-butylcalix[4]arene in cyclohexane)
IT Flash photolysis
 (laser; laser photolysis of tert-butylcalix[4]arene in cyclohexane)
IT Metacyclophanes
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (radical; laser photolysis of tert-butylcalix[4]arene in cyclohexane)
IT Absorption spectra
Kinetic analysis
 (used in studying laser photolysis of tert-butylcalix[4]arene in cyclohexane)
IT 60705-62-6, p-tert-Butylcalix[4]arene
RL: PRP (Properties); RCT (Reactant)
 (laser photolysis of tert-butylcalix[4]arene in cyclohexane)
IT 110-82-7, Cyclohexane, uses
RL: TEM (Technical or engineered material use); USES (Uses)
 (laser photolysis of tert-butylcalix[4]arene in cyclohexane)
IT 592-57-4, 1,3-Cyclohexadiene 7782-44-7, Oxygen, uses
RL: TEM (Technical or engineered material use); USES (Uses)
 (quenching agent for studying laser photolysis of tert-butylcalix[4]arene in cyclohexane)

=> dd his

DD IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system.

For a list of commands available to you in the current file, enter "HELP COMMANDS" at an arrow prompt (>).

=> d his

(FILE 'HOME' ENTERED AT 10:34:31 ON 23 JAN 2002)

FILE 'CA' ENTERED AT 10:34:40 ON 23 JAN 2002

L1 2 S PFEIFFER?/AU AND CALIXARENE

FILE 'STNGUIDE' ENTERED AT 10:35:40 ON 23 JAN 2002

FILE 'REGISTRY' ENTERED AT 10:38:03 ON 23 JAN 2002

L2 220 S CALIX AND ARENE

FILE 'CAPLUS' ENTERED AT 10:38:37 ON 23 JAN 2002

L3 97 S L2 AND PHOTO?
L4 2 S L3 AND (E BEAM OR ELECTRON BEAM)
L5 110 S L2 AND HYDROXY
L6 3 S L3 AND HYDROXY
L7 3 S L6 NOT L4
L8 92 S L3 NOT L7 NOT L4
L9 4 S L8 AND CHEM? (5A)AMPLI?
L10 88 S L8 NOT L9
L11 0 S L10 AND GLYCOLURIL

```

L12      3 S L10 AND CROSSLINK?
L13      85 S L10 NOT L12
L14      4 S L13 AND PHOTORESIST?
L15      81 S L13 NOT L14
L16      0 S L15 AND LITHOGRAPH?
L17      1 S L15 AND PHOTOCUR?
L18      3 S L6 NOT L17
L19      0 S L18 AND PHOTOACID
L20      0 S L18 AND ACID?
L21      0 S L18 AND RESIST
L22      0 S L16 NOT L17
L23      80 S L15 NOT L17
L24      3 S L23 AND PHOTOACID
L25      77 S L23 NOT L24
L26      5 S L25 AND RESIST?
L27      72 S L25 NOT L26
L28      0 S L27 AND LITHOGRAPH?
L29      15 S L27 AND ACID?
L30      57 S L27 NOT L29
L31      0 S L30 AND GLYCOLURIL

```

=> file uspatfull
COST IN U.S. DOLLARS

| | SINCE FILE
ENTRY | TOTAL
SESSION |
|---------------------|---------------------|------------------|
| FULL ESTIMATED COST | 168.25 | 185.36 |

| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE
ENTRY | TOTAL
SESSION |
|--|---------------------|------------------|
| CA SUBSCRIBER PRICE | -26.02 | -27.20 |

FILE 'USPATFULL' ENTERED AT 10:52:01 ON 23 JAN 2002
CA INDEXING COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

FILE COVERS 1971 TO PATENT PUBLICATION DATE: 22 Jan 2002 (20020122/PD)
FILE LAST UPDATED: 22 Jan 2002 (20020122/ED)
HIGHEST GRANTED PATENT NUMBER: US8336078
HIGHEST APPLICATION PUBLICATION NUMBER: US2001047529
CA INDEXING IS CURRENT THROUGH 22 Jan 2002 (20020122/UPCA)
ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 22 Jan 2002 (20020122/PD)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Dec 2001
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Dec 2001

>>> USPAT2 is now available. USPATFULL contains full text of the <<<
>>> original, i.e., the earliest published granted patents or <<<
>>> applications. USPAT2 contains full text of the latest US <<<
>>> publications, starting in 2001, for the inventions covered in <<<
>>> USPATFULL. A USPATFULL record contains not only the original <<<
>>> published document but also a list of any subsequent <<<
>>> publications. The publication number, patent kind code, and <<<
>>> publication date for all the US publications for an invention <<<
>>> are displayed in the PI (Patent Information) field of USPATFULL <<<
>>> records and may be searched in standard search fields, e.g., /PN, <<<
>>> /PK, etc. <<<

>>> USPATFULL and USPAT2 can be accessed and searched together <<<
>>> through the new cluster USPATALL. Type FILE USPATALL to <<<
>>> enter this cluster. <<<

>>>
>>> Use USPATALL when searching terms such as patent assignees, <<<
>>> classifications, or claims, that may potentially change from <<<
>>> the earliest to the latest publication. <<<

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s 12 and photo?
96 L2

423972 PHOTO?

L32

18 L2 AND PHOTO?

=> d pn,ab 1-18

L32 ANSWER 1 OF 18 USPATFULL

PI US 6337944 B1 20020108

AB The invention relates to a polymeric waveguide comprising a lanthanide ion-sensitizer complex, characterized in that the lanthanide ion is preferably neodymium(III) ion (Nd^{+3}), ytterbium(III) ion (Yb^{+3}), or erbium(III) ion (Er^{+3}), and the sensitizer absorbs in the 400-1200 nm region, and preferably in the 600-1000 nm region. The invention also relates to an optical device comprising the same.

L32 ANSWER 2 OF 18 USPATFULL

PI US 6296831 B1 20011002

AB The present invention is a thermally reversible stimulus-sensitive gel or gelling copolymer radioisotope carrier that is a linear random copolymer of an [meth]acrylamide derivative and a hydrophilic comonomer, wherein the linear random copolymer is in the form of a plurality of linear chains having a plurality of molecular weights greater than or equal to a minimum gelling molecular weight cutoff. Addition of a biodegradable backbone and/or a therapeutic agent imparts further utility. The method of the present invention for making a thermally reversible stimulus-sensitive gelling copolymer radionuclide carrier has the steps of: (a) mixing a stimulus-sensitive reversible gelling copolymer with an aqueous solvent as a stimulus-sensitive reversible gelling solution; and (b) mixing a radioisotope with said stimulus-sensitive reversible gelling solution as said radioisotope carrier. The gel is enhanced by either combining it with a biodegradable backbone and/or a therapeutic agent in a gelling solution made by mixing the copolymer with an aqueous solvent.

L32 ANSWER 3 OF 18 USPATFULL

PI US 2001024636 A1 20010927

AB The present invention is a thermally reversible stimulus-sensitive gel or gelling copolymer radioisotope carrier that is a linear random copolymer of an [meth]acrylamide derivative and a hydrophilic comonomer, wherein the linear random copolymer is in the form of a plurality of linear chains having a plurality of molecular weights greater than or equal to a minimum gelling molecular weight cutoff. Addition of a biodegradable backbone and/or a therapeutic agent imparts further utility. The method of the present invention for making a thermally reversible stimulus-sensitive gelling copolymer radionuclide carrier has the steps of: (a) mixing a stimulus-sensitive reversible gelling copolymer with an aqueous solvent as a stimulus-sensitive reversible gelling solution; and (b) mixing a radioisotope with said stimulus-sensitive reversible gelling solution as said radioisotope carrier. The gel is enhanced by either combining it with a biodegradable backbone and/or a therapeutic agent in a gelling solution made by mixing the copolymer with an aqueous solvent.

L32 ANSWER 4 OF 18 USPATFULL

PI US 6280908 B1 20010828

AB A method of improving the etch resistance of a patterned imageable resist prior to patterning an underlying substrate layer is provided. Specifically, the method employed by the present invention comprises applying a layer of an imageable resist to a substrate layer; patterning the layer of imageable resist by removing selective areas thereof; and treating the patterned imageable resist with an atmosphere comprising molecules of a hardening agent so as to obtain a hardened resist surface which etches at a slower rate than that of the untreated resist.

L32 ANSWER 5 OF 18 USPATFULL

PI US 2001003231 A1 20010614

AB A fuel composition having reduced tendency to discoloration at high temperatures comprises kerosine and/or is a jet fuel, and also comprises

a cyclic compound comprising m units of the formula 1a. ##STR1##

and n units of the formula (Ib) ##STR2##

joined together to form a ring, wherein Y is a divalent bridging group which may be the same or different in each unit; R.sup.0 is H or (C.sub.1-C.sub.6) alkyl; R.sup.5 is H or (C.sub.1-C.sub.6) alkyl; and j is 1 or 2; R.sup.3 is hydrogen, a hydrocarbyl or a hetero-substituted hydrocarbyl group; each of R.sup.1, R.sup.2 and R.sup.4, which may be the same or different, is hydroxyl, hydrogen, hydrocarbyl or hetero-substituted hydrocarbyl, with the proviso that at least one of R.sup.1, R.sup.2, R.sup.4 is hydroxyl, and m+n is 4 to 20, m is 1-8 and n is at least 3 and preferably either R.sup.1 is hydroxyl and R.sup.2 and R.sup.4 are independently either hydrogen, hydrocarbyl or hetero-substituted hydrocarbyl, or R.sup.2 and R.sup.1 are hydroxyl and R.sup.1 is either hydrogen, hydrocarbyl or hetero-substituted hydrocarbyl; and m+n is from 4 to 20, m is from 1 to 8 and n is at least 3.

L32 ANSWER 6 OF 18 USPATFULL

PI US 5952145 19990914

AB Charge control agent and toner for developing electrostatic images comprising such a charge control agent whose active ingredient is a calix (n) arene compound of formula I: ##STR1## wherein x+y=n; x and y each is an integer of 1 or more; n is an integer of 4-8; the x repeat units and y repeat units can be arranged in any order; R.sup.1 and R.sup.2 each is H, C.sub.1-12 alkyl, C.sub.2-12 alkenyl, C.sub.7-12 aralkyl, phenyl, C.sub.4-8 cycloalkyl, halogen, nitro, amino, alkyl- or phenyl-substituted amino, --Si(CH.sub.3).sub.3, or --SO.sub.3 H; and of the n R radicals in the --OR groups, 1 to (n-1) are H, with the remaining (n-1) to 1 being alkyl, alkenyl, phenyl, aralkyl, cycloalkyl, --COR.sup.3 [wherein R.sup.3 is H, alkyl, alkenyl, phenyl, aralkyl, or cycloalkyl], --Si(CH.sub.3).sub.3, --(CH.sub.2).sub.m COOR.sup.4 [wherein R.sup.4 is H or lower alkyl and m is an integer of 1-3], --(CH.sub.2 CH.sub.2 O).sub.r H [wherein r is an integer of 1-10], or ##STR2##

L32 ANSWER 7 OF 18 USPATFULL

PI US 5711927 19980127

AB This invention relates to a method of purifying a fullerenes by recrystallization of a fullerene-complexing agent complex and to a fullerene-complexing agent complex.

L32 ANSWER 8 OF 18 USPATFULL

PI US 5482520 19960109

AB The present invention provides a chemical composition comprising a t-butyl calix[8]arene encapsulated cyanuric acid derivatized with at least one C.sub.4 -C.sub.50 n-alkyl halide, n-alkaryl halide, aryl halide or polyoxyalkylene halide.

L32 ANSWER 9 OF 18 USPATFULL

PI US 5464587 19951107

AB A luminescence-optical indicator for determining the activity of alkali metals based on decay time includes at least three components that are chemically bound to one another, i.e., a fluorophor, a functional group with which the luminescence decay time of the fluorophor can be influenced, and a ionophor binding the alkali metal ions to be measured in a selective and reversible manner, the effect of the functional group on the decay time of the fluorophor being altered in dependence on the activity of the alkali metal ions.

L32 ANSWER 10 OF 18 USPATFULL

PI US 5434208 19950718

AB The invention relates to an optically non-linear active waveguiding material comprising an optically transparent polymer and a non-linear optical dopant comprising more than one donor-.pi.-acceptor unit.

Dopants comprising more than one donor-.pi.-acceptor unit, especially dopants in which the donor-.pi.-acceptor units are positioned in a cyclic group, have a high hyperpolarizability and a charge-transfer absorption band wavelength which is about the same as that of dopants with only one donor-.pi.-acceptor unit.

Especially suitable dopants for use are calix(4)arenes. These are provided with acceptor groups at the upper rim and with donor groups at the lower rim. In addition to having excellent hyperpolarizability, these compounds were found to be readily soluble in host polymers, such as polymethylene (meth) acrylate and polystyrene. Because of their charge-transfer absorption band at a low wavelength, optically non-linear active waveguiding structures containing such dopants are suitable for use as frequency doublers.

The invention further relates to hitherto undisclosed calix(4)arenes functionalized with nitrostilbene groups, cyanostilbene groups, sulfostilbene groups, sulfonate stilbene groups, azobenzenes or benzylidene aniline compounds.

L32 ANSWER 11 OF 18 USPATFULL

PI US 5350657 19940927

AB In toner for developing an electrostatic latent image, at least an organic charge-controlling agent having a BET specific surface area of 15 to 80 m.²/g and inorganic fine particles having a BET specific surface area of 10 to 150 m.²/g are fixed and/or film-formed on the surface of core particles mainly composed of thermoplastic resin.

L32 ANSWER 12 OF 18 USPATFULL

PI US 5294528 19940315

AB There is disclosed a silver halide color photographic material having at least one silver halide emulsion layer, wherein the silver halide emulsion layer comprises a magenta coupler and a compound that can break the aggregation of azomethine dye formed from said magenta coupler and the oxidized product of the color-developing agent. The silver halide color photographic material exhibits an excellent effect that the light-fastness of image dye and the color reproduction are good.

L32 ANSWER 13 OF 18 USPATFULL

PI US 5210216 19930511

AB Calixarene and oxacalixarene derivatives of the formula IV: ##STR1## wherein m'+m"=0-8

n=0-8

m'.gtoreq.1/2(m'+m")

3.ltoreq.m'+m"+n.ltoreq.8

if n=0, m'+m".gtoreq.4

R.³ is H, halogen, or hydrocarbyl, aryl, hydrocarbylaryl or a substituted derivative thereof and R.³ may be the same or different on each aryl group;

R.¹⁵ is H or hydrocarbyl, aryl, hydrocarbylaryl or a substituted derivative thereof;

X is selected from ##STR2## wherein R.⁷ and R.⁸ which may be the same or different are H or hydrocarbyl (including a cycloaliphatic ring formed by R.⁷ and R.⁸ together), aryl, hydrocarbylaryl or a substituted derivative thereof; R.⁹ is --OH, --NH₂, --NHC(O)NH₂ or --NHar, wherein Ar is aryl or a substituted derivative thereof,

n' is 0 or 1.

Use of the compounds for sequestration of metals is also described.

L32 ANSWER 14 OF 18 USPATFULL

PI US 5206437 19930427

AB The present invention relates to novel calixarene derivatives having an inclusion activity which are useful for selective transportation of various metal ions, possess a biological activity and a redox activity, and are not only capable of forming conductive or photoconductive electron transfer complexes but also have strong ability of forming complexes and absorbing UV rays. The present invention also relates to intermediates of calixarene derivatives as well as processes for production thereof.

L32 ANSWER 15 OF 18 USPATFULL

PI US 5143784 19920901

AB A novel calixarene derivative, viz. acetylated methyl-calix[n]arene (n is from 4 to 8), exhibits high solubilities in various organic solvents. A film of this compound can easily be formed by a conventional solution coating method such as spin coating, and the obtained film is hard and heat-resistant. A pattern of negative type can be formed in the obtained film by selectively irradiating the film with a high-energy ray such as ion beam, electron beam or X-ray to polymerize and insolubilize the irradiated regions and then removing the unirradiated region by dissolution in an organic solvent.

L32 ANSWER 16 OF 18 USPATFULL

PI US 4912183 19900327

AB A free radical polymerization process comprises bringing together

(a) a monomeric material such as an acrylic monomer in a relatively low polarity medium.

(b) a free radical source or initiator such as a metallic salt initiator or activator normally soluble only in high polarity media such as water and

(c) a calixarene derivative of the formula I: ##STR1## wherein m+n=4, 6 or 8 n=an integer greater than or equal to 1/2 (m+n)

wherein m+n=4, 6 or 8

n=an integer greater than or equal to 1/2 (m+n)

R=hydrocarbyl, hydrocarbyloxy, substituted hydrocarbyl, substituted hydrocarbyloxy, aryl, hydrocarbylaryl, aryloxy, hydrocarbylaryloxy, substituted aryl, substituted hydrocarbylaryl, substituted aryloxy, or substituted hydrocarbylaryloxy;

R'=H, hydrocarbyl, aryl, hydrocarbylaryl, substituted hydrocarbyl, substituted aryl, or substituted hydrocarbylaryl;

R''=H, hydrocarbyl or substituted hydrocarbyl.

A free radical polymerization catalyst comprises a combination of a water-soluble, organic-insoluble initiator and a calixarene derivative of formula I.

A gap-filling adhesive composition is also described which comprises an acrylic monomeric material adapted for activation by a metal salt activator such as a copper salt, wherein the composition includes a calixarene derivative of formula I. In the gap-filling adhesive composition the calixarene derivative may be used jointly with a halogenated alkyl acrylate or methacrylate which is halogenated on the alkyl portion.

L32 ANSWER 17 OF 18 USPATFULL

PI US 4699966 19871013
AB A linear or cross-linked polymer selected from polythioethers, polyethers, styrenic polymers, polyacrylates, and polyorganosiloxanes having a plurality of calixarene groups bound thereon, the calixarene groups having the formula ##STR1## where the R.sup.1 groups are the same or different H or hydrocarbyl groups; the R.sup.2 groups are H, hydrocarbyl, --CH.sub.2 C(=O)OR.sup.3, --CH.sub.2 C(=O)R.sup.3, or --C(=O)NHR.sup.3, R.sup.3 is hydrocarbyl or substituted hydrocarbyl; n is an integer of 1-8, m is an integer of 0-7 and n+m is 4-8.

L32 ANSWER 18 OF 18 USPATFULL

PI US 4642362 19870210

AB A linear or cross-linked polymer selected from polythioethers, polyethers, styrenic polymers, polyacrylates, and polyorganosiloxanes having a plurality of calixarene groups bound thereon, the calixarene groups having the formula ##STR1## where the R.sup.1 groups are the same or different H or hydrocarbyl groups; the R.sup.2 groups are H, hydrocarbyl, --CH.sub.2 C(.dbd.O)OR.sup.3, --CH.sub.2 C(.dbd.O)R.sup.3, or --C(.dbd.O)NHR.sup.3, R.sup.3 is hydrocarbyl or substituted hydrocarbyl; n is an integer of 1-8, m is an integer of 0-7 and n+m is 4-8.

=> d his

(FILE 'HOME' ENTERED AT 10:34:31 ON 23 JAN 2002)

FILE 'CA' ENTERED AT 10:34:40 ON 23 JAN 2002

L1 2 S PFEIFFER?/AU AND CALIXARENE

FILE 'STNGUIDE' ENTERED AT 10:35:40 ON 23 JAN 2002

FILE 'REGISTRY' ENTERED AT 10:38:03 ON 23 JAN 2002

L2 220 S CALIX AND ARENE

FILE 'CAPLUS' ENTERED AT 10:38:37 ON 23 JAN 2002

L3 97 S L2 AND PHOTO?

L4 2 S L3 AND (E BEAM OR ELECTRON BEAM)

L5 110 S L2 AND HYDROXY

L6 3 S L3 AND HYDROXY

L7 3 S L6 NOT L4

L8 92 S L3 NOT L7 NOT L4

L9 4 S L8 AND CHEM? (5A)AMPLI?

L10 88 S L8 NOT L9

L11 0 S L10 AND GLYCOLURIL

L12 3 S L10 AND CROSSLINK?

L13 85 S L10 NOT L12

L14 4 S L13 AND PHOTORESIST?

L15 81 S L13 NOT L14

L16 0 S L15 AND LITHOGRAPH?

L17 1 S L15 AND PHOTOCUR?

L18 3 S L6 NOT L17

L19 0 S L18 AND PHOTOACID

L20 0 S L18 AND ACID?

L21 0 S L18 AND RESIST

L22 0 S L16 NOT L17

L23 80 S L15 NOT L17

L24 3 S L23 AND PHOTOACID

L25 77 S L23 NOT L24

L26 5 S L25 AND RESIST?

L27 72 S L25 NOT L26

L28 0 S L27 AND LITHOGRAPH?

L29 15 S L27 AND ACID?

L30 57 S L27 NOT L29

L31 0 S L30 AND GLYCOLURIL

FILE 'USPATFULL' ENTERED AT 10:52:01 ON 23 JAN 2002

L32

18 S L2 AND PHOTO?

FILE 'STNGUIDE' ENTERED AT 10:53:08 ON 23 JAN 2002
USE IS SUBJECT TO THE TERMS OF YOUR CUSTOMER AGREEMENT
COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY, JAPAN SCIENCE
AND TECHNOLOGY CORPORATION, AND FACHINFORMATIONSZENTRUM KARLSRUHE

FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Jan 18, 2002 (20020118/UP).

FILE 'HOME' ENTERED AT 10:55:11 ON 23 JAN 2002

STN INTERNATIONAL LOGOFF AT 10:56:02 ON 23 JAN 2002

Connection closed by remote host

Trying 3106016892...Open

Welcome to STN International! Enter x:x

LOGINID:sssptau156cxh

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * * * * * * * * Welcome to STN International * * * * * * * * *

NEWS 1 Web Page URLs for STN Seminar Schedule - N. America
NEWS 2 Sep 17 IMSworld Pharmaceutical Company Directory name change
to PHARMASEARCH
NEWS 3 Oct 09 Korean abstracts now included in Derwent World Patents
Index
NEWS 4 Oct 09 Number of Derwent World Patents Index updates increased
NEWS 5 Oct 15 Calculated properties now in the REGISTRY/ZREGISTRY File
NEWS 6 Oct 22 Over 1 million reactions added to CASREACT
NEWS 7 Oct 22 DGENE GETSIM has been improved
NEWS 8 Oct 29 AAASD no longer available
NEWS 9 Nov 19 New Search Capabilities USPATFULL and USPAT2
NEWS 10 Nov 19 TOXCENTER(SM) - new toxicology file now available on STN
NEWS 11 Nov 29 COPPERLIT now available on STN
NEWS 12 Nov 29 DWPI revisions to NTIS and US Provisional Numbers
NEWS 13 Nov 30 Files VETU and VETB to have open access
NEWS 14 Dec 10 WPINDEX/WPIDS/WPIX New and Revised Manual Codes for 2002
NEWS 15 Dec 10 DGENE BLAST Homology Search
NEWS 16 Dec 17 WELDASEARCH now available on STN
NEWS 17 Dec 17 STANDARDS now available on STN
NEWS 18 Dec 17 New fields for DPCI
NEWS 19 Dec 19 CAS Roles modified
NEWS 20 Dec 19 1907-1946 data and page images added to CA and CAplus

NEWS EXPRESS August 15 CURRENT WINDOWS VERSION IS V6.0c,
CURRENT MACINTOSH VERSION IS V6.0 (ENG) AND V6.0J (JP),
AND CURRENT DISCOVER FILE IS DATED 07 AUGUST 2001
NEWS HOURS STN Operating Hours Plus Help Desk Availability
NEWS INTER General Internet Information
NEWS LOGIN Welcome Banner and News Items
NEWS PHONE Direct Dial and Telecommunication Network Access to STN
NEWS WWW CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that specific topic.

All use of STN is subject to the provisions of the STN Customer agreement. Please note that this agreement limits use to scientific research. Use for software development or design or implementation of commercial gateways or other similar uses is prohibited and may result in loss of user privileges and other penalties.

* * * * * * * * * * * * STN Columbus * * * * * * * * * * * * *

FILE 'HOME' ENTERED AT 12:53:31 ON 23 JAN 2002

=> file reg

COST IN U.S. DOLLARS

FULL ESTIMATED COST

| SINCE FILE
ENTRY | TOTAL
SESSION |
|---------------------|------------------|
| 0.15 | 0.15 |

FILE 'REGISTRY' ENTERED AT 12:53:36 ON 23 JAN 2002

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2002 American Chemical Society (ACS)

STRUCTURE FILE UPDATES: 20 JAN 2002 HIGHEST RN 385365-97-9
DICTIONARY FILE UPDATES: 22 JAN 2002 HIGHEST RN 385365-97-9

TSCA INFORMATION NOW CURRENT THROUGH July 7, 2001

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

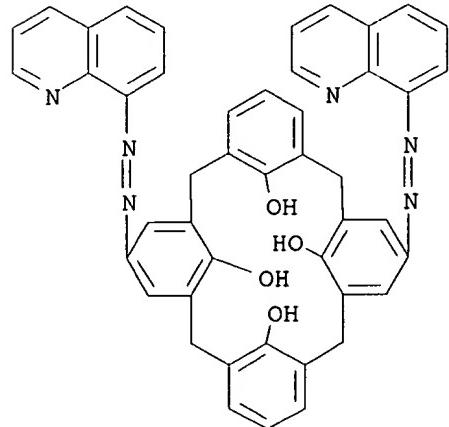
Calculated physical property data is now available. See HELP PROPERTIES
for more information. See STNote 27, Searching Properties in the CAS
Registry File, for complete details:

<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

```
=> s calix and hydroxy
      240 CALIX
      2505693 HYDROXY
L1      69 CALIX AND HYDROXY
```

```
=> d scan
```

```
L1  69 ANSWERS  REGISTRY  COPYRIGHT 2002 ACS
IN  Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
     5,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,17-bis(8-quinolinylazo)-
     (9CI)
MF  C46 H34 N6 O4
```

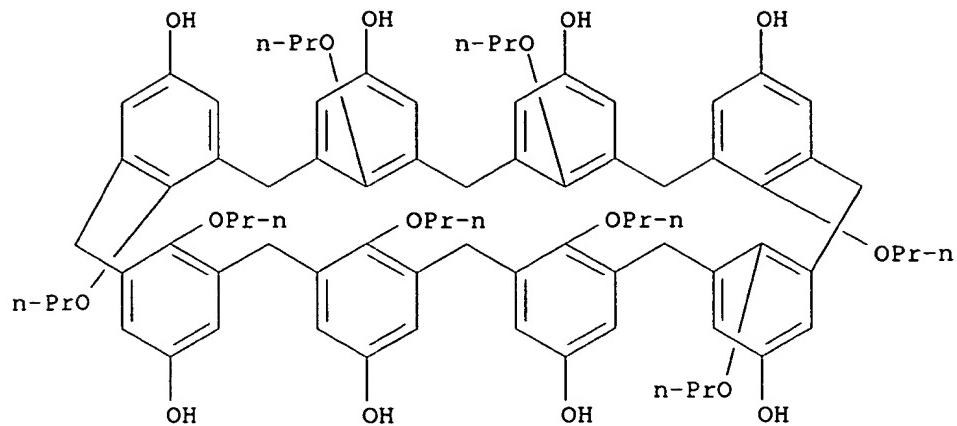


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

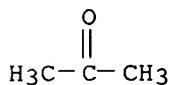
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):5

```
L1  69 ANSWERS  REGISTRY  COPYRIGHT 2002 ACS
IN  2-Propanone, compd. with 49,50,51,52,53,54,55,56-
     octapropoxynonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]
     hexapentaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29
     ,31(52),33,35,37(51),39,41,43(50),45,47-tetracosaene-
     5,11,17,23,29,35,41,47-octol (4:1) (9CI)
MF  C80 H96 O16 . 4 C3 H6 O
```

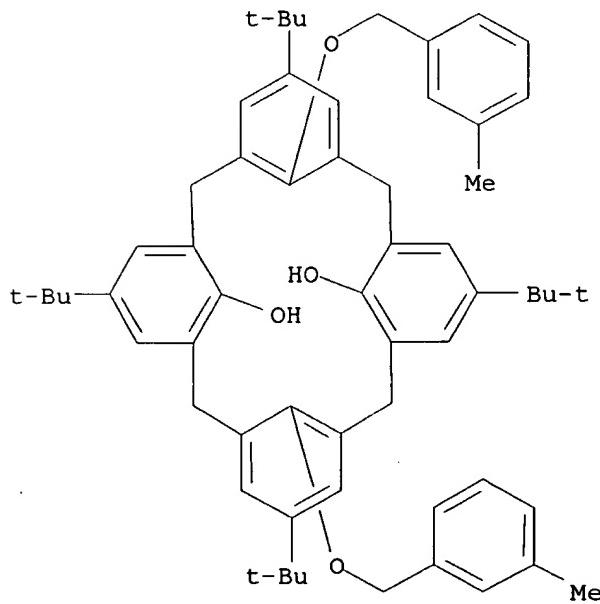
CM 1



CM 2



L1 69 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,27-diol, 5,11,17,23-tetrakis(1,1-
 dimethylethyl)-26,28-bis[(3-methylphenyl)methoxy]-, stereoisomer (9CI)
 MF C60 H72 O4

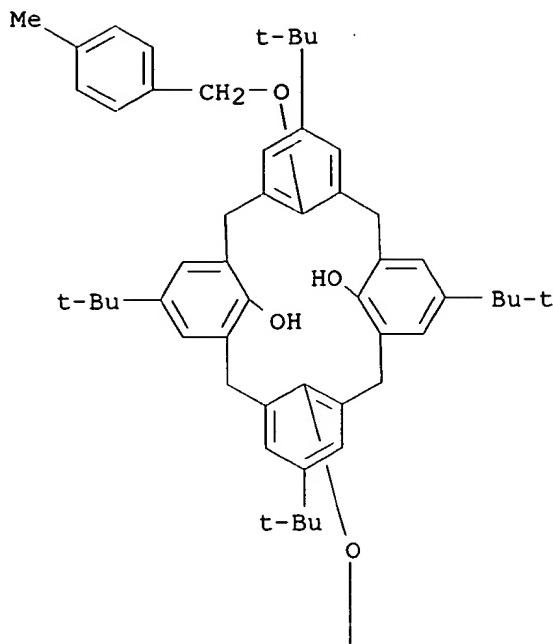


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

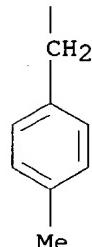
L1 69 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,27-diol, 5,11,17,23-tetrakis(1,1-
 dimethylethyl)-26,28-bis[(4-methylphenyl)methoxy]- (9CI)

MF C60 H72 O4

PAGE 1-A



PAGE 2-A

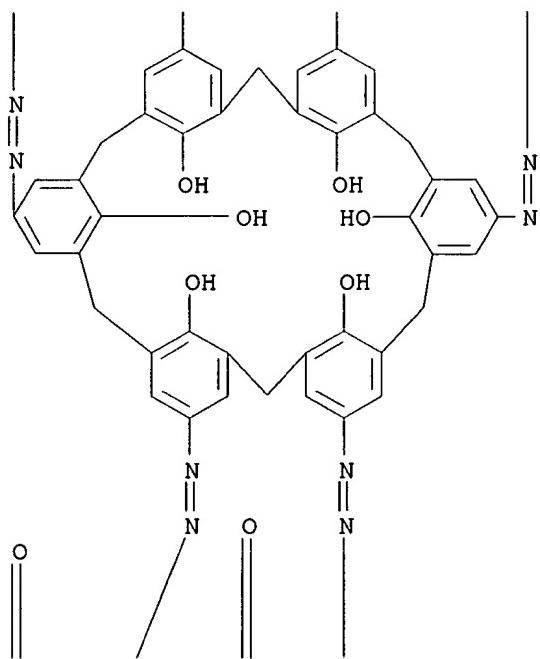
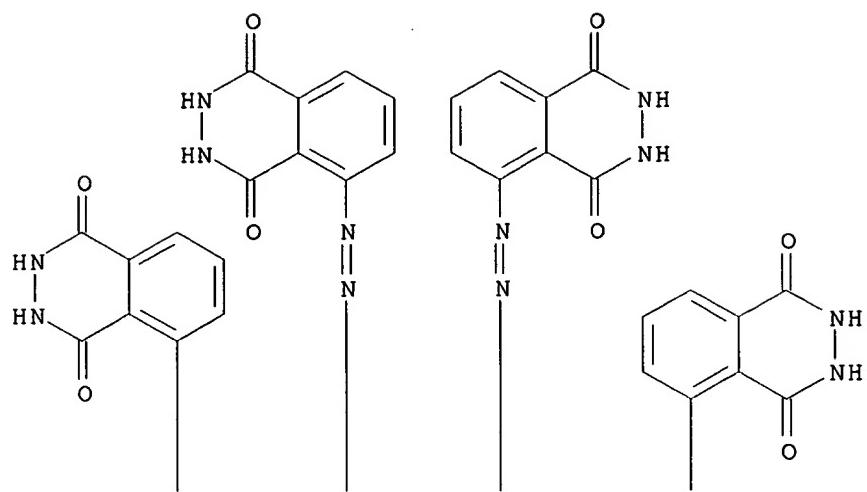


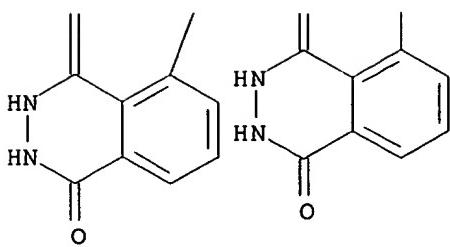
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 69 ANSWERS REGISTRY COPYRIGHT 2002 ACS

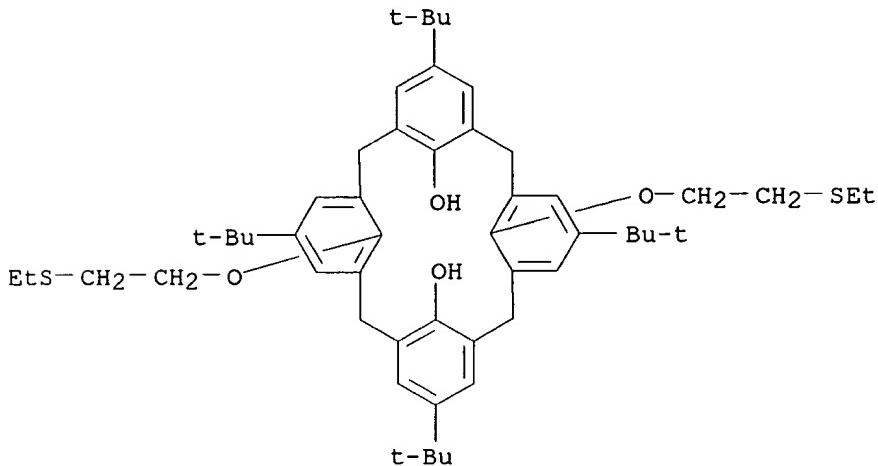
IN 1,4-Phthalazinedione, 5,5',5'',5''',5''''-[(37,38,39,40,41,42-hexahydroxyheptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene-5,11,17,23,29,35-hexayl)hexakis(azo)]hexakis[2,3-dihydro-(9CI)]

MF C90 H60 N24 O18





L1 69 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,27-diol, 5,11,17,23-tetrakis(1,1-
 dimethylethyl)-26,28-bis[2-(ethylthio)ethoxy]- (9CI)
 MF C52 H72 O4 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):end

=> d his

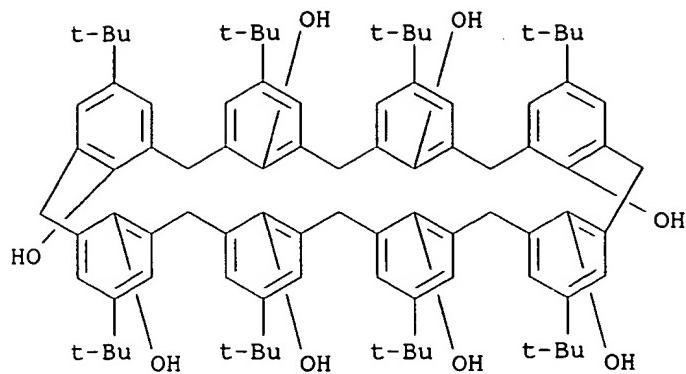
(FILE 'HOME' ENTERED AT 12:53:31 ON 23 JAN 2002)

FILE 'REGISTRY' ENTERED AT 12:53:36 ON 23 JAN 2002
 L1 69 S CALIX AND HYDROXY

=> s 11 and 8
 1812692 8
 L2 13 L1 AND 8

=> d scan

L2 13 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexapentaco
 nta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,
 35,37(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-octol,
 5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)- (9CI)
 MF C88 H112 O8
 CI COM

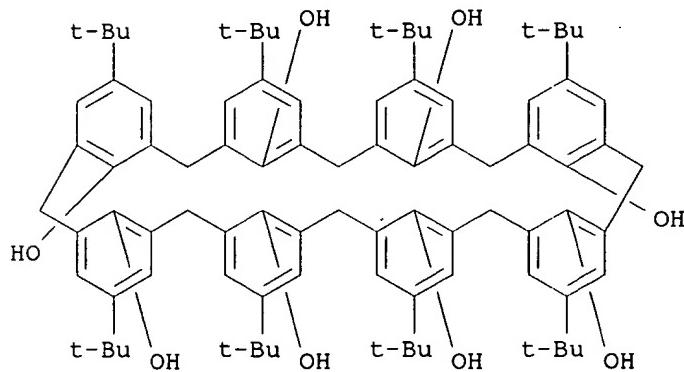


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):3

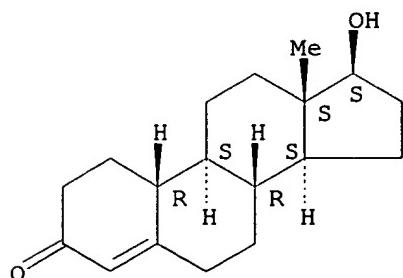
L2 13 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Estr-4-en-3-one, 17-hydroxy-, (17. β .)-, compd. with
 5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)nonacyclo[43.3.1.13,7.19,
 13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-
 1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,3
 7(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-octol (1:1)
 (9CI)
 MF C88 H112 O8 . C18 H26 O2

CM 1



CM 2

Absolute stereochemistry.

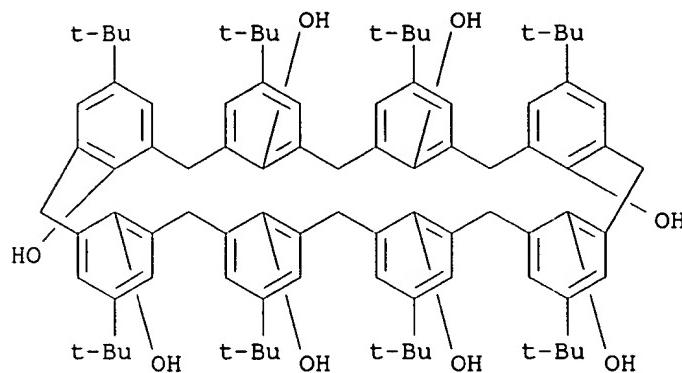


L2 13 ANSWERS REGISTRY COPYRIGHT 2002 ACS

IN Pregn-4-ene-3,20-dione, 17-hydroxy-, compd. with
5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)nonacyclo[43.3.1.13,7.19,
13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-
1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,3
7(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-octol (1:1)
(9CI)

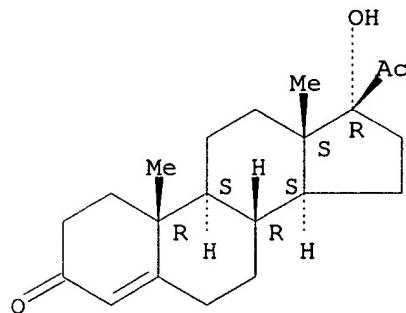
MF C88 H112 O8 . C21 H30 O3

CM 1



CM 2

Absolute stereochemistry.

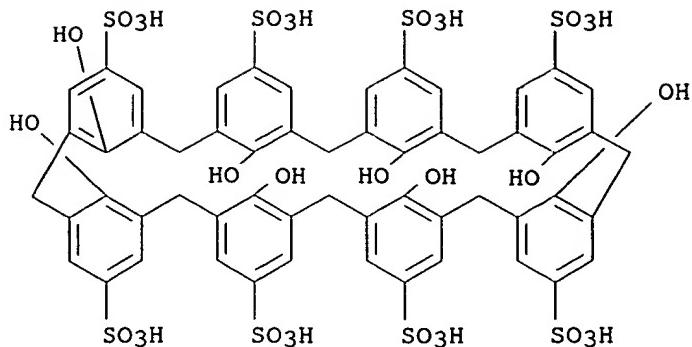


L2 13 ANSWERS REGISTRY COPYRIGHT 2002 ACS

IN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexape-
ntaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52)
,33,35,37(51),39,41,43(50),45,47-tetracosaene-5,11,17,23,29,35,41,47-
octasulfonic acid, 49,50,51,52,53,54,55,56-octahydroxy-, octasodium salt
(9CI)

MF C56 H48 O32 S8 . 8 Na

CI COM



●8 Na

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):end

=> d his

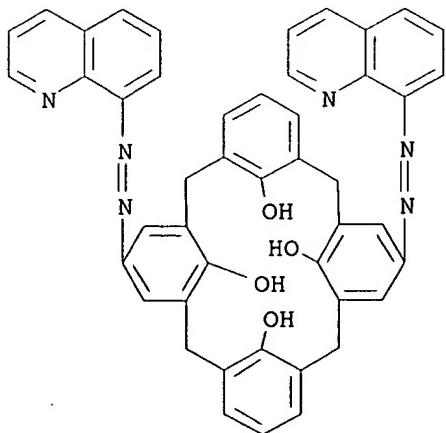
(FILE 'HOME' ENTERED AT 12:53:31 ON 23 JAN 2002)

FILE 'REGISTRY' ENTERED AT 12:53:36 ON 23 JAN 2002

L1 69 S CALIX AND HYDROXY
 L2 13 S L1 AND 8

=> d 1-13

L2 ANSWER 1 OF 13 REGISTRY COPYRIGHT 2002 ACS
 RN 339984-41-7 REGISTRY
 CN Pentacyclo[19.3.1.13.7.19,13.115,19]octacosa-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-
 tetrol, 5,17-bis(8-quinolinyazo)- (9CI) (CA INDEX NAME)
 OTHER NAMES:
 CN 5,17-Bis(quinolyl-8-azo)-25,26,27,28-tetrahydroxycalix[4]arene
 FS 3D CONCORD
 MF C46 H34 N6 O4
 SR CA
 LC STN Files: CA, CAPLUS



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

2 REFERENCES IN FILE CA (1967 TO DATE)
 2 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L2 ANSWER 2 OF 13 REGISTRY COPYRIGHT 2002 ACS
RN 331432-67-8 REGISTRY
CN 2-Propanone, compd. with 49,50,51,52,53,54,55,56-octapropoxynonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,37(51),39,41,43(50),45,47-tetracosaene-5,11,17,23,29,35,41,47-octol (4:1) (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexapentaco-nta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,37(51),39,41,43(50),45,47-tetracosaene-5,11,17,23,29,35,41,47-octol,49,50,51,52,53,54,55,56-octapropoxy-, compd. with 2-propanone (1:4) (9CI)

OTHER NAMES:

CN Octa(p-hydroxy)octakis(propyloxy)calix[8]arene compd. with acetone (1:4)

MF C80 H96 O16 . 4 C3 H6 O

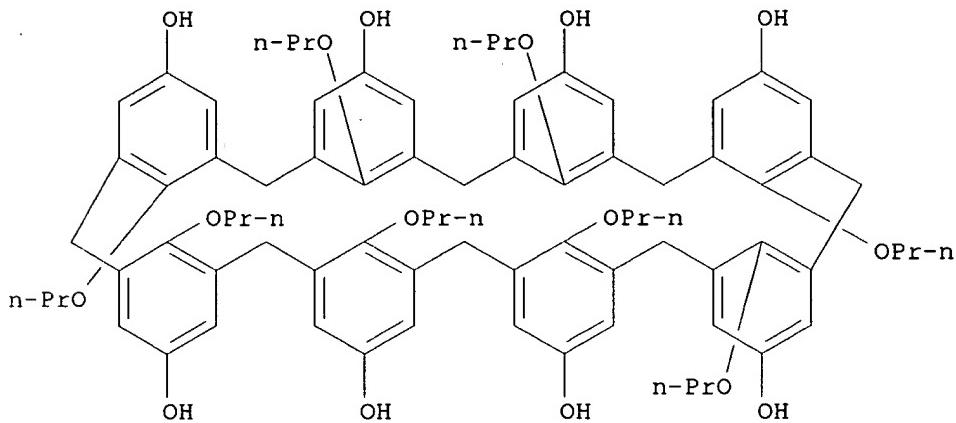
SR CA

LC STN Files: CA, CAPLUS

CM 1

CRN 261901-64-8

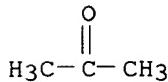
CMF C80 H96 O16



CM 2

CRN 67-64-1

CMF C3 H6 O



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L2 ANSWER 3 OF 13 REGISTRY COPYRIGHT 2002 ACS
RN 192517-26-3 REGISTRY

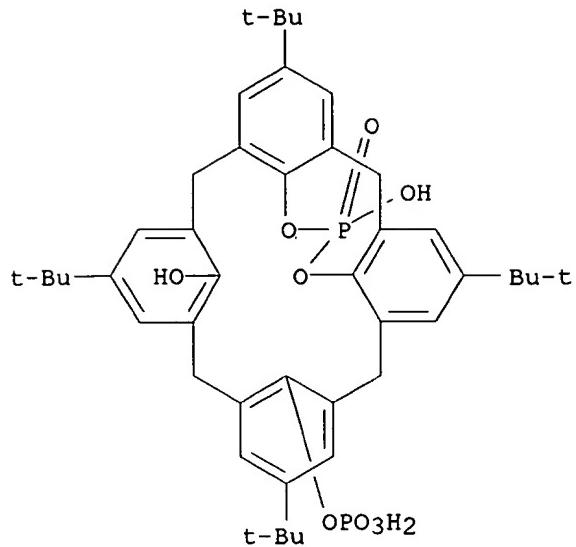
CN 11H,17H-1,21-Methano-6,10:12,16-dimetheno-5H-dibenzo[d,s][1,3,2]dioxaphosphacycloeicosin-26,27-diol,3,8,14,19-tetrakis(1,1-dimethylethyl)-23-hydroxy-, mono(dihydrogen phosphate), 23-oxide (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 5,11,17,23-Tetra-p-tert-butyl-25-hydroxy-28-dihydrogen phosphate-.mu.-26,27-hydrogen phosphate calix[4]arene

MF C44 H56 O9 P2

SR CA
LC STN Files: CA, CAPLUS



2 REFERENCES IN FILE CA (1967 TO DATE)
2 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L2 ANSWER 4 OF 13 REGISTRY COPYRIGHT 2002 ACS
RN 163313-24-4 REGISTRY

CN Estr-4-en-3-one, 17-hydroxy-, (17. β .)-, compd. with
5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)nonacyclo[43.3.1.13,7.19,
13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-
1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,3
7(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-octol (1:1)
(9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexape-
ntaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52)
,33,35,37(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-
octol, 5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)-, compd. with
(17. β .)-17-hydroxyestr-4-en-3-one (1:1) (9CI)

OTHER NAMES:

CN 19-Nortestosterone-p-tert-butylcalix[8]arene compd.

FS STEREOSEARCH

MF C88 H112 O8 . C18 H26 O2

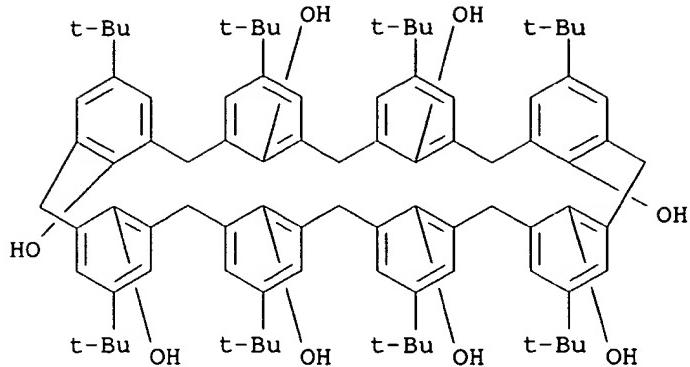
SR CA

LC STN Files: CA, CAPLUS

CM 1

CRN 68971-82-4

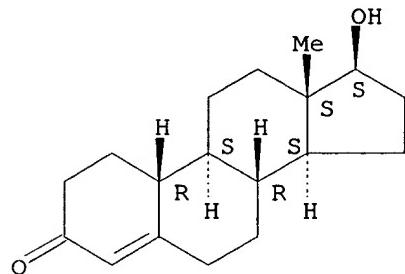
CMF C88 H112 O8



CM 2

CRN 434-22-0
CMF C18 H26 O2

Absolute stereochemistry.



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L2 ANSWER 5 OF 13 REGISTRY COPYRIGHT 2002 ACS
RN 163313-21-1 REGISTRY

CN Pregn-4-ene-3,20-dione, 11,17,21-trihydroxy-, (11.beta.)-, compd.
with 5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)nonacyclo[43.3.1.13,
7.19,13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-
1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,3
7(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-octol (1:1)
(9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexape-
ntaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52)
,33,35,37(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-
octol, 5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)-, compd. with
(11.beta.)-11,17,21-trihydroxypregn-4-ene-3,20-dione (1:1) (9CI)

OTHER NAMES:

CN Hydrocortisone-p-tert-butylcalix[8]arene compd.

FS STEREOSEARCH

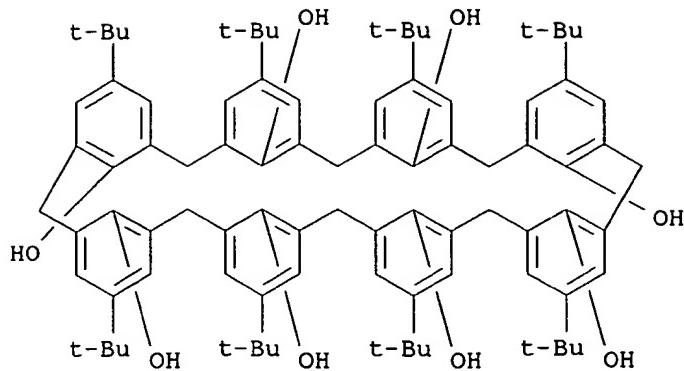
MF C88 H112 O8 . C21 H30 O5

SR CA

LC STN Files: CA, CAPLUS

CM 1

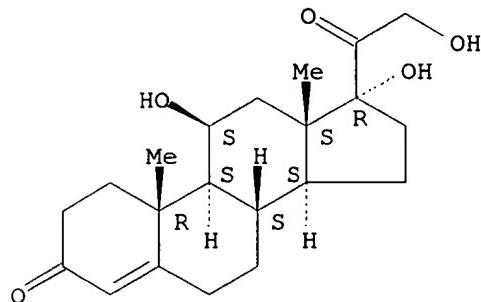
CRN 68971-82-4
CMF C88 H112 O8



CM 2

CRN 50-23-7
CMF C21 H30 O5

Absolute stereochemistry.



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L2 ANSWER 6 OF 13 REGISTRY COPYRIGHT 2002 ACS
RN 163313-18-6 REGISTRY

CN Pregn-4-ene-3,11,20-trione, 17,21-dihydroxy-, compd. with
5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)nonacyclo[43.3.1.13,7.19,
13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-
1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,3
7(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-octol (1:1)
(9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexape-
ntaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52)
,33,35,37(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-
octol, 5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)-, compd. with
17,21-dihydroxypregn-4-ene-3,11,20-trione (1:1) (9CI)

OTHER NAMES:

CN Cortisone-p-tert-butylcalix[8]arene compd.

FS STEREOSEARCH

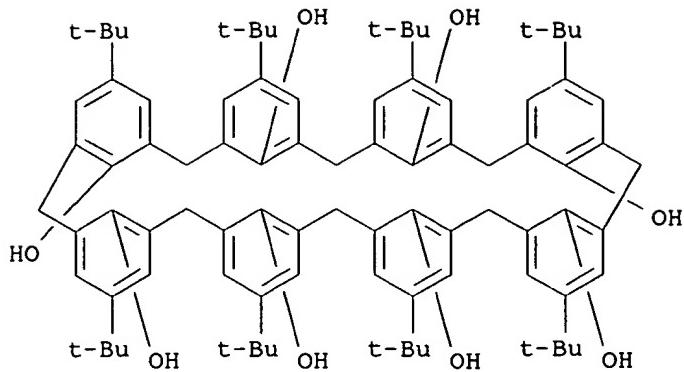
MF C88 H112 O8 . C21 H28 O5

SR CA

LC STN Files: CA, CAPLUS

CM 1

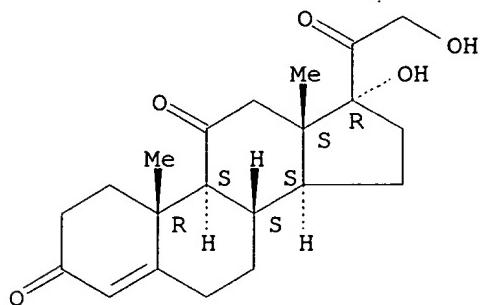
CRN 68971-82-4
CMF C88 H112 O8



CM 2

CRN 53-06-5
CMF C21 H28 O5

Absolute stereochemistry.



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L2 ANSWER 7 OF 13 REGISTRY COPYRIGHT 2002 ACS
RN 163313-12-0 REGISTRY

CN Pregn-4-ene-3,20-dione, 6-hydroxy-, (6. β .)-, compd. with
5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)nonacyclo[43.3.1.13,7.19,
13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-
1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,3
7(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-octol (1:1)
(9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexape-
ntaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52)
,33,35,37(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-
octol, 5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)-, compd. with
(6. β .)-6-hydroxypregn-4-ene-3,20-dione (1:1) (9CI)

OTHER NAMES:

CN 6. β .-Hydroxyprogesterone-p-tert-butylcalix[8]arene compd.

FS STEREOSEARCH

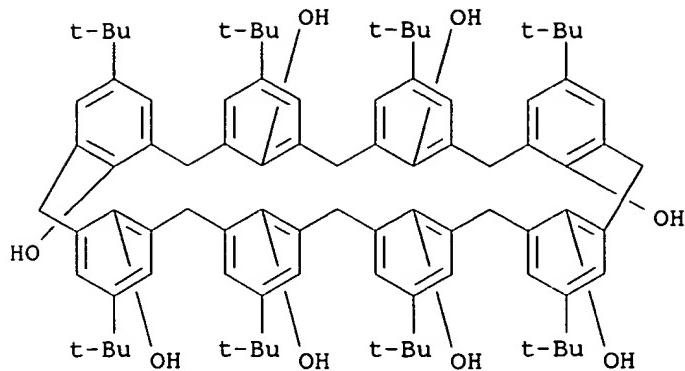
MF C88 H112 O8 . C21 H30 O3

SR CA

LC STN Files: CA, CAPLUS

CM 1

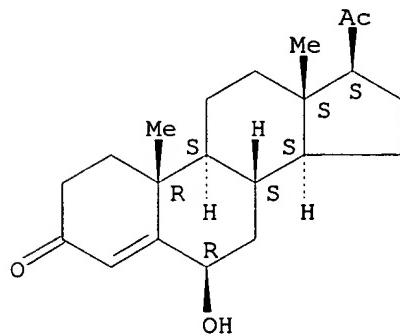
CRN 68971-82-4
CMF C88 H112 O8



CM 2

CRN 604-19-3
CMF C21 H30 O3

Absolute stereochemistry.



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L2 ANSWER 8 OF 13 REGISTRY COPYRIGHT 2002 ACS

RN 163313-09-5 REGISTRY

CN Pregn-4-ene-3,20-dione, 17-hydroxy-, compd. with
5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)nonacyclo[43.3.1.13,7.1.19,
13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-
1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,3
7(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-octol (1:1)
(9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Nonacyclo[43.3.1.13,7.1.19,13.115,19.121,25.127,31.133,37.139,43]hexape-
ntaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52)
,33,35,37(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-
octol, 5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)-, compd. with
17-hydroxypregn-4-ene-3,20-dione (1:1) (9CI)

OTHER NAMES:

CN 17.alpha.-Hydroxyprogesterone-p-tert-butylcalix[8]arene compd.

FS STEREOSEARCH

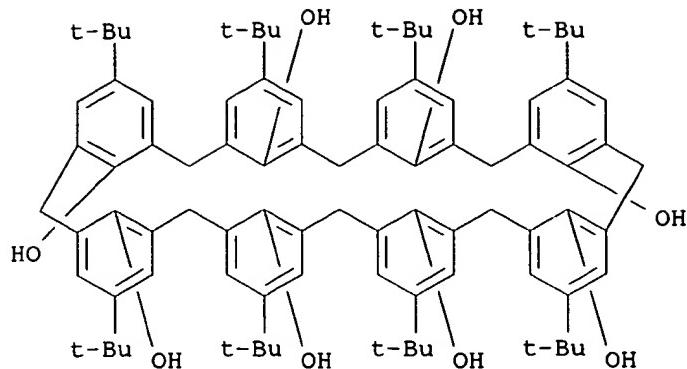
MF C88 H112 O8 . C21 H30 O3

SR CA

LC STN Files: CA, CAPLUS

CM 1

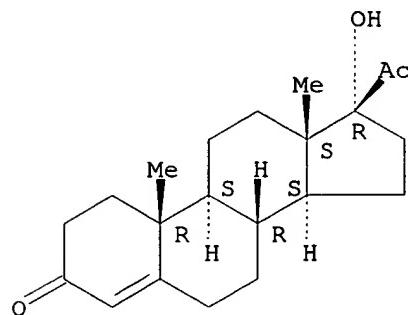
CRN 68971-82-4
CMF C88 H112 O8



CM 2

CRN 68-96-2
CMF C21 H30 O3

Absolute stereochemistry.



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L2 ANSWER 9 OF 13 REGISTRY COPYRIGHT 2002 ACS
RN 163313-06-2 REGISTRY

CN Pregn-4-ene-3,20-dione, 11-hydroxy-, (11.*beta*.)-, compd. with
5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)nonacyclo[43.3.1.13,7.19,
13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-
1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,3
7(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-octol (1:1)
(9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexape-
ntaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52)
,33,35,37(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-
octol, 5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)-, compd. with
(11.*beta*.)-11-hydroxypregn-4-ene-3,20-dione (1:1) (9CI)

OTHER NAMES:

CN 11.*beta*.-Hydroxyprogesterone-p-tert-butylcalix[8]arene compd.

FS STEREOSEARCH

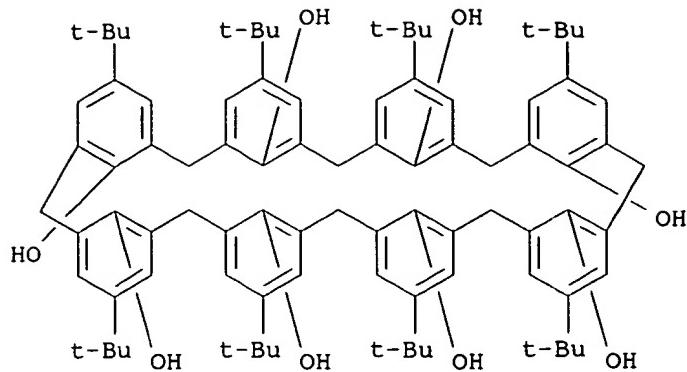
MF C88 H112 O8 . C21 H30 O3

SR CA

LC STN Files: CA, CAPLUS

CM 1

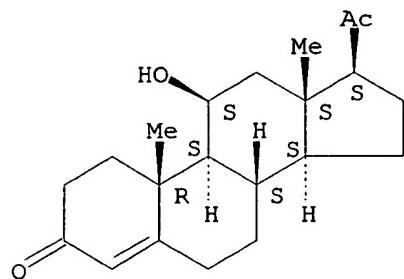
CRN 68971-82-4
CMF C88 H112 O8



CM 2

CRN 600-57-7
CMF C21 H30 O3

Absolute stereochemistry.



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L2 ANSWER 10 OF 13 REGISTRY COPYRIGHT 2002 ACS
RN 163313-03-9 REGISTRY

CN Pregn-4-ene-3,20-dione, 11-hydroxy-, (11.alpha.)-, compd. with 5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,37(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-octol (1:1) (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexapentaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,35,37(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-octol, 5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)-, compd. with (11.alpha.)-11-hydroxypregn-4-ene-3,20-dione (1:1) (9CI)

OTHER NAMES:

CN 11.alpha.-Hydroxyprogesterone-p-tert-butylcalix[8]arene compd.

FS STEREOSEARCH

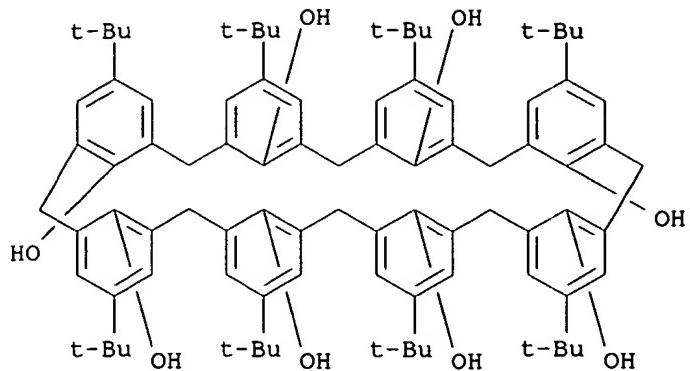
MF C88 H112 O8 . C21 H30 O3

SR CA

LC STN Files: CA, CAPLUS

CM 1

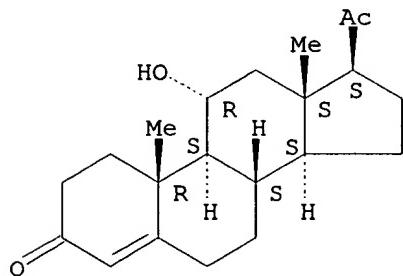
CRN 68971-82-4
CMF C88 H112 O8



CM 2

CRN 80-75-1
CMF C21 H30 O3

Absolute stereochemistry.



1 REFERENCES IN FILE CA (1967 TO DATE)
1 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L2 ANSWER 11 OF 13 REGISTRY COPYRIGHT 2002 ACS
RN 163188-56-5 REGISTRY

CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexape
ntaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52)
,33,35,37(51),39,41,43(50),45,47-tetracosaene-5,11,17,23,29,35,41,47-
octasulfonic acid, 49,50,51,52,53,54,55,56-octahydroxy-, ion(8-) (9CI)
(CA INDEX NAME)

OTHER NAMES:

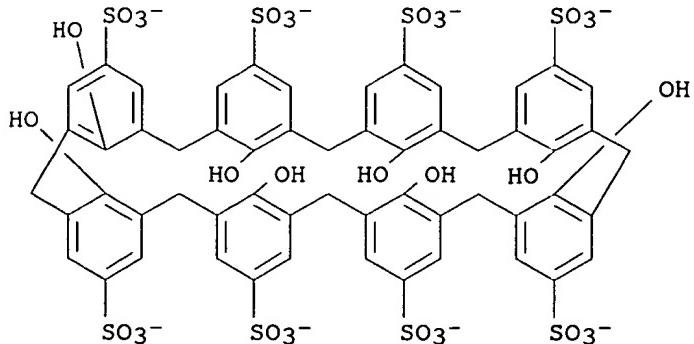
CN Hydroxycalix[8]arene-p-sulfonate

MF C56 H40 O32 S8

CI COM

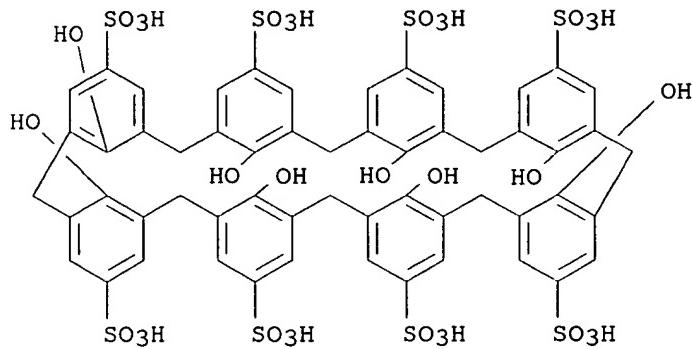
SR CA

LC STN Files: CA, CAPLUS



5 REFERENCES IN FILE CA (1967 TO DATE)
5 REFERENCES IN FILE CAPLUS (1967 TO DATE)

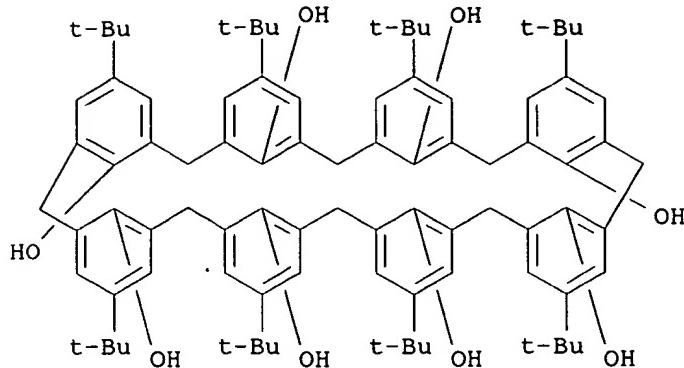
L2 ANSWER 12 OF 13 REGISTRY COPYRIGHT 2002 ACS
RN 105190-41-8 REGISTRY
CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexape
ntaconta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52
)
,33,35,37(51),39,41,43(50),45,47-tetracosaene-5,11,17,23,29,35,41,47-
octasulfonic acid, 49,50,51,52,53,54,55,56-octahydroxy-, octasodium salt
(9CI) (CA INDEX NAME)
OTHER NAMES:
CN Octasodium hydroxycalix[8]arene-p-sulfonate
DR 114272-63-8, 116664-74-5
MF C56 H48 O32 S8 . 8 Na
CI COM
SR CA
LC STN Files: BEILSTEIN*, CA, CAPLUS, CASREACT, TOXLIT, USPATFULL
(*File contains numerically searchable property data)
CRN (137407-62-6)



●8 Na

24 REFERENCES IN FILE CA (1967 TO DATE)
2 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
24 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L2 ANSWER 13 OF 13 REGISTRY COPYRIGHT 2002 ACS
RN 68971-82-4 REGISTRY
CN Nonacyclo[43.3.1.13,7.19,13.115,19.121,25.127,31.133,37.139,43]hexapentaco
nta-1(49),3,5,7(56),9,11,13(55),15,17,19(54),21,23,25(53),27,29,31(52),33,
35,37(51),39,41,43(50),45,47-tetracosaene-49,50,51,52,53,54,55,56-octol,
5,11,17,23,29,35,41,47-octakis(1,1-dimethylethyl)- (9CI) (CA INDEX NAME)
OTHER NAMES:
CN 4-(1,1-Dimethylethyl)calix[8]arene
CN 4-tert-Butylcalix[8]arene
CN 5,11,17,23,29,35,41,47-Octa-tert-butylcalix[8]arene-
49,50,51,52,53,54,55,56-octol
CN p-tert-Butylcalix[8]arene
CN p-tert-Butylhydroxycalix[8]arene
CN tert-Butylcalix[8]arene
DR 121612-88-2, 123369-48-2, 106750-70-3, 142639-45-0, 78092-52-1,
150335-48-1, 376396-34-8
MF C88 H112 O8
CI COM
LC STN Files: ANABSTR, BEILSTEIN*, BIOSIS, CA, CAPLUS, CASREACT, CHEMCATS,
CHEMLIST, CSCHEM, GMELIN*, MSDS-OHS, TOXCENTER, TOXLIT, USPATFULL
(*File contains numerically searchable property data)
Other Sources: TSCA**



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

270 REFERENCES IN FILE CA (1967 TO DATE)
33 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA
271 REFERENCES IN FILE CAPLUS (1967 TO DATE)

| => file caplus | COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|---------------------|----------------------|------------------|---------------|
| FULL ESTIMATED COST | | 33.82 | 33.97 |

FILE 'CAPLUS' ENTERED AT 12:56:07 ON 23 JAN 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications.

FILE COVERS 1907 - 23 Jan 2002 VOL 136 ISS 4
FILE LAST UPDATED: 21 Jan 2002 (20020121/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

This file supports REGISTRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

CAplus now provides online access to patents and literature covered in CA from 1907 to the present. Bibliographic information and abstracts were added in 2001 for over 3.8 million records from 1907-1966.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

The CA Lexicon is now available in the Controlled Term (/CT) field. Enter HELP LEXICON for full details.

Attention, the CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

=> d his

(FILE 'HOME' ENTERED AT 12:53:31 ON 23 JAN 2002)

FILE 'REGISTRY' ENTERED AT 12:53:36 ON 23 JAN 2002

L1 69 S CALIX AND HYDROXY
L2 13 S L1 AND 8

FILE 'CAPLUS' ENTERED AT 12:56:07 ON 23 JAN 2002

=> s 12
L3 302 L2

=> s 13 and photo?
1101037 PHOTO?
L4 20 L3 AND PHOTO?

=> s 11
L5 1339 L1

=> d all 14 1-20

L4 ANSWER 1 OF 20 CAPLUS COPYRIGHT 2002 ACS
AN 2001:663120 CAPLUS
DN 136:6399
TI Synthesis and **photochemical** reaction of high performance UV curing oligomers
AU Nishikubo, Tadatomi; Kameyama, Atsushi
CS Department of Applied Chemistry, Faculty of Engineering, Kanagawa University, Kanagawa-ku, Yokohama, 221-8686, Japan
SO Polymer Preprints (American Chemical Society, Division of Polymer Chemistry) (2001), 42(2), 722-723
CODEN: ACPPAY; ISSN: 0032-3934
PB American Chemical Society, Division of Polymer Chemistry
DT Journal; (computer optical disk)
LA English
CC 35-4 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 37
AB Calixarene derivs. contg. (meth)acrylate, vinyl ether, propargyl ether, oxetane, oxirane, or spiro ortho ester groups were synthesized by reaction of calixarenes with (meth)acrylic acid derivs., vinyl ether compds., propargyl bromide, oxetane derivs., epibromohydrin, and spiro ortho ester derivs. The calixarene derivs. contg. **photoreactive** groups had excellent thermal stability and high **photochem.** reactivity. The calixarene derivs. are of interest for UV curing systems, e.g., inks, coatings, solder masks, adhesives, and microelectronics uses.
ST calixarene acrylate prepн **photochem** reactivity UV curing; vinyl oxetane oxirane calixarene prepн **photopolymn**; cationic **photopolymn** reactivity spiro orthoester calixarene
IT Metacyclophanes
RL: CAT (Catalyst use); USES (Uses)
(meth(acrylate), vinyl ether, propargyl ether, oxetane, oxirane; prepн. and **photochem.** reaction of calixarene oligomers contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)
IT Crosslinking
(**photochem.**; prepн. and **photochem.** reaction of calixarene oligomers contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)
IT Thermal stability
(prepн. and **photochem.** reaction of calixarene oligomers

contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations
 IT 221550-29-4P 245416-15-3P 245416-16-4P 245416-17-5P 245416-18-6P
 245416-19-7P 245416-20-0P 375387-44-3P
 RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (monomer; prepn. and photochem. reaction of calixarene oligomers contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)

IT 1643-19-2, Tetrabutylammonium bromide
 RL: CAT (Catalyst use); USES (Uses)
 (phase-transfer catalyst; prepn. and photochem. reaction of calixarene oligomers contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)

IT 68015-88-3, 4-Morpholino-2,5-dibutoxybenzenediazonium hexafluorophosphate
 74227-35-3, Bis[4-(diphenylsulfonio)phenyl] sulfide
 bis(hexafluorophosphate)
 RL: CAT (Catalyst use); USES (Uses)
 (photopolymer. catalyst; prepn. and photochem. reaction of calixarene oligomers contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)

IT 176256-16-9P 233775-58-1P 233775-59-2P 233775-60-5P 233775-63-8P
 243853-44-3P 343784-07-6P 343784-08-7P 375387-45-4P 375387-46-5P
 RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
 (prepn. and photochem. reaction of calixarene oligomers contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)

IT 106-91-2, Glycidyl methacrylate 106-95-6, Allyl bromide, reactions
 106-96-7, Propargyl bromide 110-75-8, 2-Chloroethyl vinyl ether
 814-68-6, Acryloyl chloride 920-46-7, Methacryloyl chloride 3132-64-7,
 Epibromohydrin 3678-15-7, Glycidyl vinyl ether 30674-80-7,
 (2-Methacryloxy)ethyl isocyanate 65338-98-9 **68971-82-4**
 78092-53-2, p-tert-Butylcalix[6]arene 79942-31-7, p-Methylcalix[6]arene
 99314-44-0, (3-Methyl-3-oxetanylmethoxy) tosylate
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (prepn. and photochem. reaction of calixarene oligomers contg. meth(acrylate) and vinyl and oxetane substituents for UV-curable formulations)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Arimura, T; J Syn Org Chem Jpn 1989, V47, P523 CAPLUS
- (2) Fujita, J; Appl Phys Lett 1996, V68, P1297 CAPLUS
- (3) Gutsche, C; Calixarenes 1989
- (4) Holman, R; UV and EB Curing Formulation for Printing Inks, Coatings and Paints 1988
- (5) Iyo, M; J Polym Sci Part A Polym Chem 1999, V37, P3071 CAPLUS
- (6) Nishikubo, T; J Polym Sci Part A Polym Chem 1999, V37, P1805 CAPLUS
- (7) Nishikubo, T; J Polym Sci Part A Polym Chem in press
- (8) Nishikubo, T; Synthesis and Application of Photosensitive Polymers 1979
- (9) Tabata, Y; Technology & Application of UV/EB Curing 1997
- (10) Tabata, Y; Ultraviolet and Electron Beam Curable Materials 1989
- (11) Tsutui, K; Preprints of the 76th Annual Meeting of Chemical Society 1999, VII, P1319

L4 ANSWER 2 OF 20 CAPLUS COPYRIGHT 2002 ACS

AN 2001:466036 CAPLUS

DN 135:204581

TI Characterization of calixarenes by coupling of liquid chromatography with MALDI-TOF-MS

AU Kruger, Ralph-Peter; Falkenhagen, Jana; Schulz, Gunter; Gloede, Jorg
 CS Bundesanstalt fur Materialforschung und -prufung (BAM), Unter den Eichen
 87, Fachgruppe VI.3, Berlin, 12205, Germany

SO GIT Labor-Fachz. (2001), 45(4), 380-384

CODEN: GLFAF5

PB GIT Verlag GmbH

DT Journal

LA German
CC 80-6 (Organic Analytical Chemistry)
AB The sepn. of calixarene and calixarene derivs. occurring as byproducts in the industrial novolak resin prodn. was studied with liq. adsorption chromatog. at crit. conditions (LACCC). The LACCC was performed on a RP-phase column using a THF/water mixt. with 0.1% trifluoroacetic acid and a coupling with MALDI-TOF mass spectrometry was used for the identification of the calixarenes. For the characterization of an octylphenol novolak and a p-octyl calixarene mixt. the crit. solvent compn. was detd. where octyl calixarenes with different ring sizes eluted at the same retention time whereas the novolak appears sep'd. in the chromatogram. As for an increasing hydrophobic character of the calixarenes a lower polarity of the mobile phase is required for the elution of the calixarenes this was further used to sep. differently substituted calixarenes. In addn. substituted calixarene were sep'd. according to their ring sizes using the crit. conditions for octyl calixarenes.

ST liq adsorption chromatog MALDI MS calixarene detn
IT Liquid chromatography
(adsorption, at crit. conditions; calixarene detn. by coupling of liq. chromatog. with MALDI-TOF-MS)
IT Hyphenated techniques
Time-of-flight mass spectrometry
(calixarene detn. by coupling of liq. chromatog. with MALDI-TOF-MS)
IT Metacyclophanes
RL: ANT (Analyte); ANST (Analytical study)
(calixarenes; calixarene detn. by coupling of liq. chromatog. with MALDI-TOF-MS)
IT Laser ionization mass spectrometry
(photodesorption, matrix-assisted; calixarene detn. by coupling of liq. chromatog. with MALDI-TOF-MS)
IT Laser desorption mass spectrometry
(photoionization, matrix-assisted; calixarene detn. by coupling of liq. chromatog. with MALDI-TOF-MS)
IT 42607-92-1 53255-02-0 59288-62-9 60705-62-6 **68971-82-4**
68971-85-7 74568-07-3 78092-53-2 79942-31-7 81475-22-1
82452-92-4 82452-93-5 83933-03-3 96107-95-8 135549-05-2
138452-84-3
RL: ANT (Analyte); ANST (Analytical study)
(calixarene detn. by coupling of liq. chromatog. with MALDI-TOF-MS)

RE.CNT 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Belenkii, B; J Chromatogr 1978, V147, P99 CAPLUS
- (2) Bohmer, V; Angew Chem 1995, V107, P785
- (3) Fischer, C; Eur J Org Chem 1998, P155 CAPLUS
- (4) Gutsche, C; Calixarene Revisited in Monographs in Supramolecular Chemistry 1989
- (5) Gutsche, C; Calixarene Revisited in Monographs in Supramolecular Chemistry 1998
- (6) Gutsche, C; Calixarene Revisited in Monographs in Supramolecular Chemistry 1998
- (7) Montag, P; CLB Chemie in Labor und Biotechnik 1999, V50, P253 CAPLUS
- (8) Pasch, H; HPLC of Polymers 1997
- (9) Weidner, S; Int J Polym Anal Charact 2000, V5, P549
- (10) Willis, J; Polym Mater Sci Eng 1993, V69, P120 CAPLUS
- (11) Yamakawa, Y; J Chem Soc Perkin Trans I 1998, V24, P4135

L4 ANSWER 3 OF 20 CAPLUS COPYRIGHT 2002 ACS

AN 2001:298802 CAPLUS

DN 135:92321

TI The inclusion complexation of dye guest molecules with water-soluble calixarene

AU Han, Bao-Hang; Liu, Yu; Chen, Rong-Ti

CS Department of Chemistry, Nankai University, Tianjin, 300071, Peop. Rep. China

SO Huaxue Xuebao (2001), 59(4), 550-555

CODEN: HHPA4; ISSN: 0567-7351

PB Kexue Chubanshe
DT Journal
LA Chinese
CC 22-12 (Physical Organic Chemistry)
Section cross-reference(s): 41
AB The inclusion complexation of some dye guest mols. with water-sol. calix[n]arenesulfonates ($n = 4, 6, 8$) and alkylated calix[6]arenesulfonates has been investigated at 25.0.degree.C. It was found that the fluorescence intensity of dye guests decreases upon the addn. of calix[n]arenesulfonates, while the alkylated calix[6]arenesulfonate derivs. cause gradual increases in the fluorescence intensity of dye guest. The phenomena were explained in terms of photophys. behavior. The stability consts. of the resultant complexes were detd. via spectrofluorometric titrn. at 25.0.degree.C and the mol. recognition behavior was also discussed.
ST dye inclusion calixarene
IT Metacyclophanes
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(calixarenes; inclusion complexation of dye guest mols. with water-sol. calixarenes)
IT Fluorescence
Fluorescence quenching
Fluorescent dyes
Formation constant
Inclusion reaction
Molecular recognition
(inclusion complexation of dye guest mols. with water-sol. calixarenes)
IT Free energy
(of inclusion reaction; inclusion complexation of dye guest mols. with water-sol. calixarenes)
IT 348109-88-6 348109-89-7 348109-90-0 348109-91-1 348109-92-2
348109-93-3 348109-94-4 348109-95-5 348109-96-6
RL: FMU (Formation, unclassified); PRP (Properties); FORM (Formation, nonpreparative)
(inclusion complexation of dye guest mols. with water-sol. calixarenes)
IT 65-61-2, Acridine orange 92-32-0, Pyronine Y 2150-48-3, Pyronine B
2465-29-4, Acridine red 60705-62-6 **68971-82-4** 78092-53-2
348109-86-4 348109-87-5
RL: PRP (Properties); RCT (Reactant)
(inclusion complexation of dye guest mols. with water-sol. calixarenes)
IT 114332-16-0P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(inclusion complexation of dye guest mols. with water-sol. calixarenes)

L4 ANSWER 4 OF 20 CAPLUS COPYRIGHT 2002 ACS
AN 2001:272887 CAPLUS

DN 135:61583
TI Synthesis and photoinduced deprotection of calixarene derivatives containing certain protective groups
AU Nishikubo, Tadatomi; Kameyama, Atsushi; Tsutsui, Kousuke; Kishimoto, Shinichi
CS Department of Applied Chemistry, Faculty of Engineering, Kanagawa University, Yokohama, 221-8686, Japan
SO Journal of Polymer Science, Part A: Polymer Chemistry (2001), 39(9), 1481-1494

CODEN: JPACEC; ISSN: 0887-624X
PB John Wiley & Sons, Inc.

DT Journal
LA English

CC 35-2 (Chemistry of Synthetic High Polymers)

AB Calixarene derivs. 1, 2, and 3 contg. pendant tert-butoxycarbonyl (t-BOC) groups were synthesized in 81, 93, and 83% yield, resp., by the reaction of C-methylcalix[4]resorcinarene (CRA), p-methylcalix[6]arene (MCA), and p-tert-butylcalix[8]arene (BCA) with di-tert-Bu dicarbonate using triethylamine as a base in pyridine. Calixarene derivs. contg. pendant trimethylsilyl ether (TMSE) groups were obtained in 58, 50, and 82%

yields, resp., by the reaction of CRA, MCA, and BCA with 1,1,1,3,3,3-hexamethyldisilazane using chlorotrimethylsilane as an accelerator in THF. Calixarene derivs. contg. pendant cyclohexenyl ether (CHE) groups were also prep'd. in 65, 78, and 84% yields, resp., by the reaction of CRA, MCA, and BCA with 3-bromocyclohexene using KOH as base and tetrabutylammonium bromide as phase-transfer catalyst in N-methyl-2-pyrrolidone. The **photoinduced** deprotection of calixarene derivs. 1-3 was examd. with bis-[4-(diphenylsulfonio)phenyl]sulfide bis(hexafluorophosphate) as a **photoacid** generator on UV irradn. followed by heating in the film state, and the deprotection of the t-BOC groups of proceeded smoothly in high conversion. The deprotection rate of the t-BOC groups of 2 and 3 was much lower than that of 1 under the same irradn. conditions. The **photoinduced** deprotection of calixarenes contg. tetramethylsilane groups and CHE groups was also examd. under similar reaction conditions; the deprotection rate of the substituted compds. was lower than that of 1-3 calixarenes.

ST calixarene butoxycarbonyl prepn **photoinduced** deprotection diphenylsulfoniophenylsulfide fluorophosphate; trimethylsilyl ether calixarene prepn **photoinduced** deprotection rate; cyclohexenyl ether calixarene prepn **photoinduced** deprotection rate

IT Protective groups
(**photoinduced** deprotection; synthesis and
photoinduced deprotection of calixarene derivs. contg. t-BOC and trimethylsilyl ether cyclohexenyl ether protective groups)

IT **Photolysis**
Photolysis kinetics
(synthesis and **photoinduced** deprotection of calixarene derivs. contg. t-BOC and trimethylsilyl ether cyclohexenyl ether protective groups)

IT 74227-35-3, Bis-[4-(diphenylsulfonio)phenyl]sulfide bis(hexafluorophosphate)
RL: NUU (Other use, unclassified); USES (Uses)
(deprotection reagent; synthesis and **photoinduced** deprotection of calixarene derivs. contg. t-BOC and trimethylsilyl ether cyclohexenyl ether protective groups)

IT 1643-19-2, Tetra-n-butylammonium bromide
RL: CAT (Catalyst use); USES (Uses)
(phase-transfer catalyst; synthesis and **photoinduced** deprotection of calixarene derivs. contg. t-BOC and trimethylsilyl ether cyclohexenyl ether protective groups)

IT 75-77-4, Chlorotrimethylsilane, reactions 1521-51-3, 3-Bromocyclohexene 24424-99-5, Di-tert-butyl dicarbonate 65338-98-9, C-Methylcalix[4]resorcinarene **68971-82-4**, p-tert-Butylcalix[8]arene 79942-31-7, p-Methylcalix[6]arene
RL: RCT (Reactant)
(synthesis and **photoinduced** deprotection of calixarene derivs. contg. t-BOC and trimethylsilyl ether cyclohexenyl ether protective groups)

IT 68971-83-5P, 5,11,17,23,29,35,41,47-Octa-tert-butyl-49,50,51,52,53,54,55,56-octakis[(trimethylsilyl)oxy]calix[8]arene 160399-38-2P, 2,8,14,20-Tetramethyl-4,6,10,12,16,18,22,24-octakis[(trimethylsilyl)oxy]calix[4]resorcinarene 250715-26-5P, 5,11,17,23,29,35,41,47-Octa-tert-butyl-49,50,51,52,53,54,55,56-octakis[(tert-butoxycarbonyl)oxy]calix[8]arene 250715-27-6P, 5,11,17,23,29,35-Hexamethyl-37,38,39,40,41,42-hexakis[(tert-butoxycarbonyl)oxy]calix[6]arene 250715-31-2P, 2,8,14,20-Tetramethyl-4,6,10,12,16,18,22,24-octakis[(tert-butoxycarbonyl)-oxy]calix[4]resorcinarene 250715-32-3P, 5,11,17,23,29,35-Hexamethyl-37,38,39,40,41,42-hexakis[(trimethylsilyl)-oxy]calix[6]arene 250715-35-6P, 5,11,17,23,29,35,41,47-Octa-tert-butyl-49,50,51,52,53,54,55,56-octakis[(3-cyclohexenyl)oxy]calix[8]arene 250715-36-7P, 5,11,17,23,29,35-Hexamethyl-37,38,39,40,41,42-hexakis[(3-cyclohexenyl)oxy]calix[6]arene 346406-91-5P, 2,8,14,20-Tetramethyl-4,6,10,12,16,18,22,24-octakis[(3-cyclohexenyl)oxy]calix[4]resorcinarene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(synthesis and **photoinduced** deprotection of calixarene

derivs. contg. t-BOC and trimethylsilyl ether cyclohexenyl ether
protective groups)

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD

- RE
- (1) Arimura, T; J Synth Org Chem Jpn 1989, V47, P523 CAPLUS
 - (2) Conlon, D; J Macromolecules 1989, V22, P509 CAPLUS
 - (3) Frechet, J; ACS Symposium Series 381 1989, P155 CAPLUS
 - (4) Fujita, J; Appl Phys Lett 1996, V68, P1297 CAPLUS
 - (5) Gutsche, C; Calixarenes 1989
 - (6) Hogberg, A; J Org Chem 1980, V45, P4498
 - (7) Iyo, M; J Polym Sci Part A: Polym Chem 1999, V37, P3071 CAPLUS
 - (8) Lhotak, P; J Synth Org Chem Jpn 1995, V53, P523
 - (9) Mandolini, L; Calixarene in Action 1999
 - (10) Nakayama, R; Polym Prepr Jpn 1998, V47, P417
 - (11) Nakayama, T; Bull Chem Soc Jpn 1998, V71, P2979 CAPLUS
 - (12) Nakayama, T; Chem Lett 1997, P265 CAPLUS
 - (13) Nishikubo, T; J Polym Sci Part A: Polym Chem 1999, V37, P1805 CAPLUS
 - (14) Nishikubo, T; J Polym Sci Part A: Polym Chem, in press
 - (15) Ochiai, Y; J Photopolym Sci Technol 2000, V13, P413 CAPLUS
 - (16) Takeshi, K; Chem Lett 1998, P865 CAPLUS
 - (17) Takeshita, M; Bull Chem Soc Jpn 1995, V68, P1088 CAPLUS
 - (18) Tsutsui, K; Polym Prepr Jpn 1998, V47, P417
 - (19) Ueda, M; Chem Mater 1998, V10, P2230 CAPLUS
 - (20) Willson, C; J Electrochem Soc 1986, V133, P181 CAPLUS
 - (21) Yamaoka, T; Polym Eng Sci 1989, V29, P856 CAPLUS

L4 ANSWER 5 OF 20 CAPLUS COPYRIGHT 2002 ACS

AN 2001:227550 CAPLUS

DN 135:33719

TI Synthesis of photoreactive calixarene derivatives containing
pendant cyclic ether groups

AU Nishikubo, Tadatomi; Kameyama, Atsushi; Tsutsui, Kousuke

CS Department of Applied Chemistry, Faculty of Engineering, Kanagawa
University, Yokohama, 221-8686, Japan

SO Journal of Polymer Science, Part A: Polymer Chemistry (2001), 39(8),
1169-1179

CODEN: JPACCEC; ISSN: 0887-624X

PB John Wiley & Sons, Inc.

DT Journal

LA English

CC 35-7 (Chemistry of Synthetic High Polymers)

AB New photoreactive calixarene derivs. contg. cationically
polymerizable pendant oxetane groups were synthesized in good yields by
the substitution reaction of C-methylcalix[4]resorcinarene (CRA),
p-methylcalix[6]arene (MCA), and p-tert-butylcalix[8]arene (BCA) with
(3-methyloxetan-3-yl)methyl 4-toluenesulfonate and (3-ethyloxetan-3-
yl)methyl 4-toluenesulfonate with potassium hydroxide as a base and
tetrabutylammonium bromide as a phase transfer catalyst in

N-methyl-2-pyrrolidone, resp. Calixarene derivs. contg. cationically
polymerizable pendant oxirane groups were also prep'd. in good yields by
the substitution reaction of CRA, MCA, and BCA with epibromohydrin, resp.,
with cesium carbonate as a base in N-methyl-2-pyrrolidone. The thermal
stability of the obtained calixarene derivs. contg. pendant oxetane groups
or oxirane groups was examd. with thermogravimetric anal., and it was
found that these calixarene derivs. had thermal stability beyond 340
.degree.C. The photochem. reaction of calixarenes contg.

pendant oxetane groups was examd. with certain photoacid
generators in the film state. In this reaction system, calixarene 1a,
composed of a CRA structure and pendant (3-methyloxetan-3-yl)methyl
groups, showed the highest photochem. reactivity when
bis-[4-(diphenylsulfonio)phenyl]sulfide bis(hexafluorophosphate) was used
as the catalyst. The photochem. reaction of calixarenes contg.
pendant oxirane groups was also examd., and it was found that the
photoinitiated cationic polymn. of these calixarenes proceeded
smoothly under the same conditions; however, the reaction rates were lower
than those of the corresponding calixarenes contg. pendant oxetane groups.
ST photoreactive calixarene deriv pendant cyclic ether; oxetane

calixarene deriv photoreactive prep; oxirane calixarene deriv
photoreactive prep

IT Metacyclophanes
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(calixarenes; prepn. and polymn. of photoreactive calixarene derivs. contg. pendant cyclic ether groups)

IT Polymerization
(cationic, photochem.; prepn. and polymn. of photoreactive calixarene derivs. contg. pendant cyclic ether groups)

IT 3132-64-7, Epibromohydrin 68971-82-4, p-tert-Butylcalix[8]arene
79942-31-7, p-Methylcalix[6]arene
RL: RCT (Reactant)
(in prepn. of photoreactive calixarene derivs. contg. pendant cyclic ether groups)

IT 65338-98-9P 99314-44-0P 237403-65-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(in prepn. of photoreactive calixarene derivs. contg. pendant cyclic ether groups)

IT 237403-63-3P 237403-64-4P 243853-43-2P 243853-44-3P 259823-37-5P
343784-06-5P 343784-07-6P 343784-08-7P 343784-09-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and photoinitiated cationic polymn. of)

IT 343784-10-1P 343784-11-2P 343784-12-3P 343784-13-4P 343784-14-5P
343784-15-6P 343784-16-7P 343784-17-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. by photoinitiated cationic polymn.)

IT 98-59-9, p-Toluenesulfonyl chloride
RL: RCT (Reactant)
(reaction with hydroxymethylmethyloxetane)

IT 108-46-3, Resorcinol, reactions
RL: RCT (Reactant)
(reaction with paraldehyde)

IT 123-63-7, Paraldehyde
RL: RCT (Reactant)
(reaction with resorcinol)

IT 3047-32-3, 3-Hydroxymethyl-3-ethyloxetane 3143-02-0,
3-Hydroxymethyl-3-methyloxetane
RL: RCT (Reactant)
(reaction with toluenesulfonyl chloride)

RE.CNT 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Arimura, T; J Synth Org Chem Jpn 1989, V47, P523 CAPLUS
(2) Fujita, J; Appl Phys Lett 1996, V68, P1297 CAPLUS
(3) Gutsche, C; Calixarenes 1989
(4) Hogberg, A; J Org Chem 1980, V45, P4498
(5) Holman, R; UV and EB Curing Formulation for Printing Inks, Coatings and Paints 1988
(6) Hori, M; Jpn Chem Pharm Bull 1985, V33, P1707 CAPLUS
(7) Iyo, M; J Polym Sci Part A: Polym Chem 1999, V37, P3071 CAPLUS
(8) Iyo, M; Polym Prepr Jpn 1996, V45, P448
(9) Iyo, M; Proc RadTech Asia '97 1997, P349
(10) Jacob, S; Macromolecules 1996, V29, P8631 CAPLUS
(11) Lhotak, P; J Synth Org Chem Jpn 1995, V53, P523
(12) Mandolini, L; Calixarene in Action 1999
(13) Nakayama, R; Polym Prepr Jpn 1998, V47, P417
(14) Nakayama, T; Bull Chem Soc Jpn 1998, V71, P2979 CAPLUS
(15) Nakayama, T; Chem Lett 1997, P265 CAPLUS
(16) Nishikubo, T; J Polym Sci Part A: Polym Chem 1999, V37, P1805 CAPLUS
(17) Nishikubo, T; Synthesis and Application of Photosensitive Polymers 1979
(18) Ochiai, Y; J Photopolym Sci Technol 2000, V13, P413 CAPLUS
(19) Schmaljohann, D; Macromol Mater Eng 2000, V275, P31 CAPLUS
(20) Starks, C; Phase Transfer Catalysis 1978
(21) Takeshi, K; Chem Lett 1998, P865 CAPLUS
(22) Takeshita, M; Bull Chem Soc Jpn 1995, V68, P1088 CAPLUS
(23) Tsutsui, K; Polym Prepr Jpn 1998, V47, P417

- (24) Ueda, J; Macromolecules 1998, V31, P6762 CAPLUS
(25) Ueda, M; Chem Mater 1998, V10, P2230 CAPLUS

L4 ANSWER 6 OF 20 CAPLUS COPYRIGHT 2002 ACS

AN 2000:653730 CAPLUS

DN 133:238532

TI Calixarene derivatives and low-mold-shrinkage curable resin compositions containing them

IN Nishikubo, Tadaomi; Kameyama, Atsushi; Ando, Yoshinori

PA Kuraray Co., Ltd., Japan; Kanagawa University

SO Jpn. Kokai Tokkyo Koho, 11 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C07D493-10

ICS C08G004-00; C08G008-36; C08G065-16; C08G085-00

CC 35-7 (Chemistry of Synthetic High Polymers)

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|---------------|------|----------|-----------------|----------|
| PI | JP 2000256362 | A2 | 20000919 | JP 1999-61087 | 19990309 |

OS MARPAT 133:238532

AB The title derivs. are calixarenes bearing spiro-orthoester groups. Thus, mixing 0.34 g calix[4]resorcinarene with 1.96 g cesium carbonate in 3 mL N-methyl-2-pyrrolidone at room temp. for 5 h, adding 0.08 g tetrabutylammonium bromide and 1.15 g Me bromoacetate, mixing at 70.degree. for 48 h and working up gave 2,8,14,20-tetramethyl-4,6,10,12,16,18,22,24-octakis[(methoxycarbonyl)methoxy]calix[4]resorcinarene which was hydrolyzed, heated with 1,8-diazabicyclo[5.4.0]-7-undecene in N-methyl-2-pyrrolidone at 60.degree. for 12 h and derivatized with 2-bromomethyl-1,4,6-trioxaspiro[4.4]nonane to give a title deriv.

ST spiro orthoester deriv calixarene manuf; resorcinarene calixarene compd manuf

IT Metacyclophanes

RL: IMF (Industrial manufacture); PREP (Preparation)
(calixarenes; calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)

IT 294182-92-6P 294182-93-7P 294182-94-8P

RL: IMF (Industrial manufacture); PREP (Preparation)
(calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)

IT 96-32-2, Methyl bromoacetate

RL: MOA (Modifier or additive use); USES (Uses)
(carboxylating agent; calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)

IT 84298-07-7

RL: MOA (Modifier or additive use); USES (Uses)
(derivatization agent; calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)

IT 97600-42-5P 116851-59-3P 130508-38-2P 203063-80-3P 294182-90-4P

294182-91-5P

RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation)
(intermediate; calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)

IT 294182-95-9P 294182-96-0P 294182-97-1P

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(photocurable resins; calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)

IT 65338-98-9 68971-82-4, p-tert-Butylcalix[8]arene 79942-31-7,
p-Methylcalix[6]arene

RL: RCT (Reactant)
(starting material; calixarene derivs. and low-mold-shrinkage curable resin compns. contg. them)

L4 ANSWER 7 OF 20 CAPLUS COPYRIGHT 2002 ACS

AN 2000:182832 CAPLUS

DN 132:321601
TI Effect of addition of calix[n]arenes on photooxygenation of 4,5-diphenylimidazolones
AU Chawla, H. Mohindra; Pathak, Manisha
CS Department of Chemistry, Indian Institute of Technology, New Delhi, 110 016, India
SO J. Indian Chem. Soc. (2000), 77(2), 98-99
CODEN: JICSAH; ISSN: 0019-4522
PB Indian Chemical Society
DT Journal
LA English
CC 22-7 (Physical Organic Chemistry)
AB Rates of dye-sensitized photo-oxygenation of 4,5-diphenylimidazolones increase markedly on addn. of calix[n]arenes. The effect of addn. of calix[6]arenes is more pronounced than that of calix[4]- and calix[8]arenes and it varies with the size of the alkyl group (octyl > hexyl > t-Bu > Me > H) in the same calixarene series.
ST calixarene catalyzed photooxygenation imidazolone deriv
IT Chemical chains
(alkyl-group chain length; p-R-calix[n]arene-catalyzed photooxygenation of 4,5-diphenylimidazolones as function of cavity size n and alkyl group R chain length)
IT Metacyclophanes
RL: CAT (Catalyst use); USES (Uses)
(calixarenes; p-R-calix[n]arene-catalyzed photooxygenation of 4,5-diphenylimidazolones as function of cavity size n and alkyl group R chain length)
IT Oxidation, photochemical
(p-R-calix[n]arene-catalyzed photooxygenation of 4,5-diphenylimidazolones as function of cavity size n and alkyl group R chain length)
IT Oxidation catalysts
(photooxidn.; p-R-calix[n]arene-catalyzed photooxygenation of 4,5-diphenylimidazolones as function of cavity size n and alkyl group R chain length)
IT 78077-33-5, p-tert-Butylcalix[8]arene octaacetate
RL: CAT (Catalyst use); USES (Uses)
(inactive; p-R-calix[n]arene-catalyzed photooxygenation of 4,5-diphenylimidazolones as function of cavity size n and alkyl group R chain length)
IT 59288-62-9, p-Methylcalix[5]arene 60705-62-6, p-tert-Butylcalix[4]arene 68971-82-4, p-tert-Butylcalix[8]arene 74568-07-3, Calix[4]arene 78092-53-2, p-tert-Butylcalix[6]arene 102622-25-3, p-Octylcalix[6]arene
RL: CAT (Catalyst use); USES (Uses)
(p-R-calix[n]arene-catalyzed photooxygenation of 4,5-diphenylimidazolones as function of cavity size n and alkyl group R chain length)
IT 965-04-8, N,N'-Dibenzoylurea
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(p-R-calix[n]arene-catalyzed photooxygenation of 4,5-diphenylimidazolones as function of cavity size n and alkyl group R chain length)
IT 642-36-4D, 4,5-diphenyl-2-imidazolone
RL: RCT (Reactant)
(p-R-calix[n]arene-catalyzed photooxygenation of 4,5-diphenylimidazolones as function of cavity size n and alkyl group R chain length)
RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Chawla, H; Bull Soc Chim Fr 1991, V128, P232
(2) Chawla, H; J Chem Soc Perkin Trans 1 1984, P1511 CAPLUS
(3) Chawla, H; J Surface Sci Technol 1991, V7, P2651
(4) Chawla, H; Tetrahedron 1990, V47, P1331
(5) Chawla, H; Tetrahedron Lett 1980, V21, P2089 CAPLUS
(6) Gutsche, C; Calixarenes: A Versatile Class of Macrocyclic Compounds 1991
(7) Gutsche, C; J Am Chem Soc 1987, V109, P4314 CAPLUS
(8) Gutsche, C; J Org Chem 1986, V51, P742 CAPLUS

- (9) Gutsche, C; Org Synth 1989, P234
 (10) Gutsche, C; Tetrahedron 1988, V15, P4689
 (11) Gutsche, C; The Calixarenes 1990
 (12) Harris, S; J Chem Soc Chem Commun 1991, P1224 CAPLUS
 (13) Harrowfield, J; J Chem Soc Chem Commun 1991, P1159 CAPLUS
 (14) Morita, Y; J Org Chem 1992, V57, P3658 CAPLUS
 (15) Pathak, M; Thesis Indian Institute of Technology 1990
 (16) Shinkai, S; Bull Chem Soc Jpn 1990, V63, P1272 CAPLUS
 (17) Shinkai, S; J Am Chem Soc 1986, V108, P2409 CAPLUS
 (18) Shinkai, S; J Am Chem Soc 1989, V111, P5477 CAPLUS
 (19) Shinkai, S; J Chem Soc Perkin Trans 1 1989, P1073 CAPLUS
 (20) Shinkai, S; J Chem Soc Perkin Trans 1 1989, P1859 CAPLUS

L4 ANSWER 8 OF 20 CAPLUS COPYRIGHT 2002 ACS

AN 1999:744383 CAPLUS

DN 132:7560

TI Acid-decomposable group-containing calixarenes, calixresorcinarenes, and photosensitive composition for resist

IN Nishikubo, Tadaomi; Kameyama, Atsushi; Ota, Yoshihisa

PA JSR Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 15 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C07C043-235

ICS C07C069-33; C07F007-18; G03F007-039

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 25

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|-------------|------|----------|-----------------|----------|
| PI | JP 11322656 | A2 | 19991124 | JP 1998-146597 | 19980511 |

OS MARPAT 132:7560

GI For diagram(s), see printed CA Issue.

AB The compn. contains .gtoreq.1 calix(resorcin)arenes I (R₁, R₂ = H, C₁-5 alkyl; R₃ = H, O₂CBu-t, SiMe₃, cyclohexenyl; n = 1-3; m = 4-12) and a photo-acid generator. The compn. is useful as pos.-working chem. amplified resists.

ST calixarene calixresorcinarene photosensitive compn resist; acid decomposable calixarene calixresorcinarene photoresist

IT Positive photoresists

(acid-decomposable group-contg. calixarenes or calixresorcinarenes for photoresists)

IT Metacyclophanes

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (calixarenes; acid-decomposable group-contg. calixarenes or calixresorcinarenes for photoresists)

IT 108-46-3, 1,3-Benzenediol, reactions 123-63-7 1521-51-3,

3-Bromocyclohexene 68971-82-4, p-tert-Butylcalix(8)arene

250715-27-6 250715-28-7, p-Methylcalix(7)arene 250715-30-1,

p-Methylcalix(8)arene

RL: RCT (Reactant)

(acid-decomposable group-contg. calixarenes or calixresorcinarenes for photoresists)

IT 65338-98-9P, Calix[4]resorcinarene 68971-83-5P 160399-38-2P

250715-26-5P 250715-31-2P 250715-32-3P 250715-33-4P 250715-34-5P

250715-35-6P 250715-36-7P 250715-37-8P 250715-39-0P 250715-40-3P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(acid-decomposable group-contg. calixarenes or calixresorcinarenes for photoresists)

L4 ANSWER 9 OF 20 CAPLUS COPYRIGHT 2002 ACS

AN 1999:328222 CAPLUS

DN 131:130330

TI Synthesis and photochemical reaction of novel
p-alkylcalix[n]arene derivatives containing cationically polymerizable
groups

AU Nishikubo, Tadatomi; Kameyama, Atsushi; Tsutsui, Kousuke; Iyo, Masami

CS Department of Applied Chemistry, Faculty of Engineering, Kanagawa
University, Yokohama, 221-8686, Japan

SO J. Polym. Sci., Part A: Polym. Chem. (1999), 37(12), 1805-1814
CODEN: JPACCEC; ISSN: 0887-624X

PB John Wiley & Sons, Inc.

DT Journal

LA English

CC 35-4 (Chemistry of Synthetic High Polymers)

AB New photoreactive p-methylcalix[6]arene (MCA) derivs. contg.
cationically polymerizable groups such as propargyl ether (calixarene 1),
allyl ether (calixarene 2), and ethoxy vinyl ether (calixarene 3) groups
were synthesized with 80, 74, and 84% yields by the substitution reaction
of MCA with propargyl bromide, allyl bromide, and 2-chloroethyl vinyl
ether (CEVE), resp., in the presence of either potassium hydroxide or
sodium hydride by using tetrabutylammonium bromide (TBAB) as a phase
transfer catalyst (PTC). The p-tert-butylcalix[8]arene (BCA) deriv.
contg. ethoxy vinyl ether groups (calixarene 4) was also synthesized in
83% yield by the substitution reaction of BCA with CEVE by using sodium
hydride as a base and TBAB as a PTC. The MCA deriv. contg. 1-propenyl
ether groups (calixarene 5) was synthesized in 80% yield by the
isomerization of calixarene 2, which contained allyl ether groups, by
using potassium tert-butoxide as a catalyst. The photochem.
reactions of calixarene 1, 3, 4, 5, and 6 were examd. with certain
photoacid generators in the film state. In this reaction system,
calixarene 3 contg. ethoxy vinyl ether groups showed the highest
photochem. reactivity when bis-[4-(diphenylsulfonio)phenyl]sulfide
bis(hexafluorophosphate) (DPSP) was used as the catalyst. On the other
hand, calixarene 1 contg. propargyl ether groups had the highest
photochem. reactivity when 4-morpholino-2,5-
dibutoxybenzenediazonium hexafluorophosphate (MDBZ) was used as the
catalyst. It was also found that the prepd. calixarene derivs. contg.
cationically polymerizable groups such as propargyl, allyl, vinyl, and
also 1-propenyl ethers have good thermal stability.

ST photochem polymn vinyl propargyl propenyl calixarene; catalyst
photochem polymn unsatd alkylcalixarene

IT Polymerization
Polymerization catalysts
(cationic, photochem.; synthesis and photochem.
polymn. of alkylcalix[n]arene derivs. contg. cationically polymerizable
groups)

IT Addition reaction catalysts
Glass transition temperature
Isomerization
Solubility
Thermal stability
(synthesis and photochem. polymn. of alkylcalix[n]arene
derivs. contg. cationically polymerizable groups)

IT Metacyclophanes
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation)
(unsatd. derivs.; synthesis and photochem. polymn. of
alkylcalix[n]arene derivs. contg. cationically polymerizable groups)

IT 1112-67-0, Tetrabutylammonium chloride 1643-19-2, Tetrabutylammonium
bromide 2304-30-5, Tetrabutylphosphonium chloride 3115-68-2,
Tetrabutylphosphonium bromide 6674-22-2 7447-40-7, Potassium chloride
(KCl), uses 7758-02-3, Potassium bromide (KBr), uses 17455-13-9,
18-Crown-6
RL: CAT (Catalyst use); USES (Uses)
(in unsatd. calixarene prepn.; synthesis and photochem.
polymn. of alkylcalix[n]arene derivs. contg. cationically polymerizable
groups)

IT 106-95-6, Allyl bromide, reactions 106-96-7, Propargyl bromide
3678-15-7, Glycidyl vinyl ether

RL: RCT (Reactant)
 (in unsatd. calixarene prepn.; synthesis and **photochem.**
 polymn. of alkylcalix[n]arene derivs. contg. cationically polymerizable
 groups)
 IT 110-75-8, 2-Chloroethyl vinyl ether
 RL: RCT (Reactant)
 (isomerization of; synthesis and **photochem.** polymn. of
 alkylcalix[n]arene derivs. contg. cationically polymerizable groups)
 IT 233775-59-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (isomerization of; synthesis and **photochem.** polymn. of
 alkylcalix[n]arene derivs. contg. cationically polymerizable groups)
 IT 32760-80-8 68015-88-3, 4-Morpholino-2,5-dibutoxybenzenediazonium
 hexafluorophosphate 74227-35-3, Bis-[4-(diphenylsulfonio)phenyl]sulfide
 bis(hexafluorophosphate)
 RL: CAT (Catalyst use); USES (Uses)
 (synthesis and **photochem.** polymn. of alkylcalix[n]arene
 derivs. contg. cationically polymerizable groups)
 IT 68971-82-4, p-tert-Butylcalix[8]arene 79942-31-7
 RL: RCT (Reactant)
 (synthesis and **photochem.** polymn. of alkylcalix[n]arene
 derivs. contg. cationically polymerizable groups)
 IT 233775-58-1P 233775-60-5P 233775-61-6P 233775-62-7P 233775-63-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (synthesis and **photochem.** polymn. of alkylcalix[n]arene
 derivs. contg. cationically polymerizable groups)
 IT 233775-64-9P 233775-65-0P 233775-66-1P 233775-67-2P 233775-69-4P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (synthesis and **photochem.** polymn. of alkylcalix[n]arene
 derivs. contg. cationically polymerizable groups)

RE.CNT 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Arimura, T; J Syn Org Chem Jpn 1989, V47, P523 CAPLUS
- (2) CMC; Synthesis and Application of Photosensitive Polymers 1979
- (3) Crivello, J; J Polym Sci Polym Chem Ed 1983, V21, P1785 CAPLUS
- (4) Crivello, J; J Polym Sci Polym Chem Ed 1995, V33, P1381 CAPLUS
- (5) Crivello, J; J Polym Sci Polym Chem Ed 1996, V34, P2051 CAPLUS
- (6) Fujita, J; Appl Phys Lett 1996, V68, P1297 CAPLUS
- (7) Gulluci, R; J Org Chem 1983, V48, P342
- (8) Gutsche, C; Calixarenes 1989
- (9) Iizawa, T; Macromolecules 1984, V17, P992 CAPLUS
- (10) International Training Associates Limited; UV and EB Curing Formulation
for Printing Inks Coatings and Paints 1988
- (11) Ito, H; J Polym Sci Polym Chem Ed 1997, V35, P3217
- (12) Ito, H; Macromolecules 1995, V28, P883
- (13) Iyo, M; Polym Prepr 1996, V45, P448
- (14) Iyo, M; Proceedings of RadTech Asia 1997 1997, P349
- (15) Keammerer, H; Monatsh Chem 1981, V112, P759
- (16) Lhotak, P; J Syn Org Chem Jpn 1995, V53, P523
- (17) Nakayama, T; Chem Lett 1997, P265 CAPLUS
- (18) Nishikubo, T; Application and Market of UV and EB Curing Technology 1989,
P56
- (19) Ogasawara, T; Synthesis and Application of Photosensitive Polymers 1980,
P403
- (20) Takeshita, M; Bull Chem Soc Jpn 1995, V68, P1088 CAPLUS
- (21) Wamme, N; Proc Am Chem Soc 1992, VPMSE67, P451

L4 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2002 ACS

AN 1998:486746 CAPLUS

DN 129:189003

TI Effect of various cations on the acidity of p-sulfonatocalixarenes

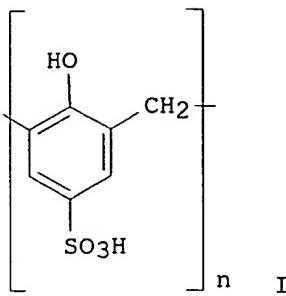
AU Suga, Kosaku; Ohzono, Takuya; Negishi, Makoto; Deuchi, Kouji; Morita,
Yutaka

CS Department of Biomolecular Engineering, Tokyo Institute of Technology,
Yokohama, 226, Japan

SO Supramol. Sci. (1998), 5(1-2), 9-14

CODEN: SUSCFX; ISSN: 0968-5677

PB Elsevier Science Ltd.
DT Journal
LA English
CC 22-12 (Physical Organic Chemistry)
GI



AB Photometric and pH-metric titrn. curves of p-sulfonatocalixarenes, C[n]ASO₃H (I; n = 4, 6, 8), were measured in the presence of electrolytes of various cations. These titrn. curves revealed that the presence of tetramethylammonium (TMA⁺) and tetraethylammonium (TEA⁺) ions largely decreased pKa values for C[n]ASO₃H (n = 4, 6, 8), while alkali and alk.-earth metal cations had small effects. Comparison of the pH dependence of absorption spectra for C[n]ASO₃H (n = 4, 6, 8) with that for corresponding monomer, p-hydroxybenzenesulfonate, indicated that the small values of pKa1 and pKa2 obsd. for C[8]ASO₃H were attributable to dissochn. of its OH groups in this compd. The dependence of pKa values for C[4]ASO₃H and p-hydroxybenzenesulfonate on the concn. of NaCl was due to the difference in their activity coeffs. before and after their deprotonation steps estd. on the basis of Debye-Huckel theory. These results suggested that C[n]ASO₃H (n = 4, 6, 8) hardly formed stable complexes with Na⁺ or other alkali metal cations in aq. solns. while C[n]ASO₃H (n = 4, 6, 8) formed stable complexes with tetraalkylammonium cations. It was also shown that the p-sulfonatophenol or p-sulfonatophenoxy units in the calixarene interacted independently with ionic atmospheres formed around the phenol units.

ST calixarene ionization const cation effect

IT Alkali metal ions

Alkaline earth ions

RL: PRP (Properties)

(activity effect; effect of various cations on the acidity of p-sulfonatocalixarenes)

IT Activity (thermodynamic)

(alkali metal cation effects; effect of various cations on the acidity of p-sulfonatocalixarenes)

IT Ionization constant

(effect of various cations on the acidity of p-sulfonatocalixarenes)

IT Metacyclophanes

Sulfonic acids, properties

RL: PRP (Properties)

(effect of various cations on the acidity of p-sulfonatocalixarenes)

IT Quaternary ammonium compounds, properties

RL: PEP (Physical, engineering or chemical process); PRP (Properties);

PROC (Process)

(inclusion effect; effect of various cations on the acidity of p-sulfonatocalixarenes)

IT Inclusion reaction

(of quaternary ammonium ions; effect of various cations on the acidity of p-sulfonatocalixarenes)

IT 51-92-3, Tetramethylammonium ion 66-40-0 14127-61-8, Calcium ion, properties 17341-25-2, Sodium ion, properties 22541-12-4, Barium ion, properties 24203-36-9, Potassium ion, properties

RL: PRP (Properties)

(effect of various cations on the acidity of p-sulfonatocalixarenes)

IT 102088-39-1 112269-92-8 137407-62-6
 RL: PRP (Properties)
 (ionization const. in presence of electrolytes; effect of various cations on the acidity of p-sulfonatocalixarenes)
 IT 96107-96-9 105190-41-8 110242-20-1
 RL: PRP (Properties)
 (ionization const.; effect of various cations on the acidity of p-sulfonatocalixarenes)
 IT 825-90-1, Sodium p-hydroxybenzenesulfonate
 RL: PRP (Properties)
 (monomer unit; effect of various cations on the acidity of p-sulfonatocalixarenes)

L4 ANSWER 11 OF 20 CAPIUS COPYRIGHT 2002 ACS

AN 1998:277408 CAPIUS

DN 129:10630

TI Positive-working chemical amplification-type **photosensitive** resin composition containing polyphenols and method for manufacturing resist images

IN Kato, Koji; Hashimoto, Masahiro; Hashimoto, Michiaki

PA Hitachi Chemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 8 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-039

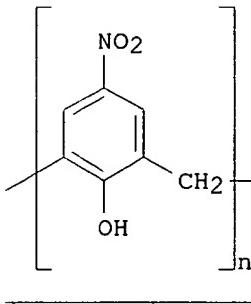
ICS G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|----------------|-----------|----------|-----------------|----------|
| PI | JP 10115926 | A2 | 19980506 | JP 1997-210284 | 19970805 |
| PRAI | JP 1996-221938 | | 19960823 | | |
| OS | MARPAT | 129:10630 | | | |

GI



AB A pos.-type chem. amplification-series **photosensitive resin** compn. contains (a) a resin sol. in aq. alkali soln., (b) polynitrophenols (calixarene) (I; n = 4-8), (c) a compd. generating an acid upon irradn. with active chem. ray, and (d) a compd. possessing on the side chain, a group decomposable by acid which increases solv. in aq. alkali soln. by acid-catalyzed reaction. The content of low-mol. wt. component having mol. wt. $\geq 2,000$ as polystyrene in the above compn. is ≤ 10 wt.%. Also claimed is a method for prep. resist images, in which the coating of above resin compn. is irradiated with active chem. ray and then developed. The compn. provides resist patterns of good resoln. and shows high sensitivity, high degree of resoln., and high heat resistance and is used for microprocessing of semiconductor devices.

ST pos working **photoresist** alkali sol; semiconductor device manuf **photoresist**; polyphenol **photoresist** chem amplification **photoresist**; calixarene pos working **photoresist**

IT Positive photoresists
Semiconductor devices
(pos.-working chem. amplification-type photosensitive resin
compn. contg. polyphenols and method for manufg. resist images)

IT Metacyclophanes
Novolaks
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working chem. amplification-type photosensitive resin
compn. contg. polyphenols and method for manufg. resist images)

IT 50-00-0, Formaldehyde, reactions 98-54-4 24979-70-2,
Poly(p-vinylphenol)
RL: RCT (Reactant)
(pos.-working chem. amplification-type photosensitive resin
compn. contg. polyphenols and method for manufg. resist images)

IT 60705-62-6P 68971-82-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(pos.-working chem. amplification-type photosensitive resin
compn. contg. polyphenols and method for manufg. resist images)

IT 24979-70-2DP, Poly(p-vinylphenol), tetrahydropyranyl-substituted
27029-76-1P, m-Cresol-p-cresol-formalin copolymer 60288-40-6P,
Trimethylsulfonium trifluoromethanesulfonate 109051-62-9P 109081-46-1P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(pos.-working chem. amplification-type photosensitive resin
compn. contg. polyphenols and method for manufg. resist images)

IT 9016-83-5, CN 19
RL: TEM (Technical or engineered material use); USES (Uses)
(pos.-working chem. amplification-type photosensitive resin
compn. contg. polyphenols and method for manufg. resist images)

L4 ANSWER 12 OF 20 CAPLUS COPYRIGHT 2002 ACS

AN 1996:399850 CAPLUS

DN 125:154141

TI Photophysical properties of lanthanide dinuclear complexes with
p-nitro-calix[8]arene

AU Buenzli, Jean-Claude G.; Ihringer, Frederic

CS Universite de Lausanne, Institut de Chimie Minerale et Analytique, BCH
1402, Lausanne, CH-1015, Switz.

SO Inorg. Chim. Acta (1996), 246(1-2), 195-205

CODEN: ICHAA3; ISSN: 0020-1693

DT Journal

LA English

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other
Reproductive Processes)

Section cross-reference(s): 73

AB The ligand p-nitrocalix[8]arene, n-LH₈, was synthesized and its acidity
consts. were detd. at 25.degree.C in H₂O/THF 70/30 vol./vol. by a
potentiometric method: pK_{a1} < 0, pK_{a2} = 2.6 .+-. 0.1, pK_{a3} = 7.2 .+-. 0.2,
pK_{a4} = 10.2 .+-. 0.2, and pK_{a5-8} > 12. Upon reaction of n-LH₈ with
lanthanide nitrates in DMF contg. an excess of triethylamine, lanthanide
dinuclear complexes are isolated whose elemental analyses correspond to
the formula [Ln₁Ln₂(n-LH₂)(DMF)_x(DMF)_y(EtOH)_z. Solvation is difficult to
control and different crystn. or drying conditions yield compds. with
different solvation. When two Ln(III) ions are added to the soln.,
compds. are isolated which contain a mixt. of the homo- and
heterodinuclear species. A small size discriminating effect is evidenced,
larger Ln(III) ions being apparently favored. Anal. of the luminescence
of the Eu(5D₀) level reveals the following features: (i) the series of
complexes with Ln₁ = Eu, and Ln₂ = Nd, Gd, Tb, Ho appears to be approx.
isostructural, (ii) the two metal ion sites are similar and possess a low
site symmetry, and (iii) the Eu(III) environment is not well defined,
either because the compds. behave like 'glasses', with ligand mols.
adopting several comparable configurations, or because the solvent mols.
completing the coordination polyhedron of the Eu(III) ion occupy
statistical sites rendering the structure somewhat disordered. A
photophys. study of the ligand n-LH₈, of the homodinuclear

complexes with Ln1 = Ln2 = Eu, Gd, Tb, Lu and of the heterodinuclear complexes has been performed. Compared to the situation for complexes with p-tert-butylcalix[8]arene, the ligand excited states are shifted to lower energy, henceforth the ligand-to-Tb(III) energy transfer no more occurs while the transfer to the Eu(III) ion is favored, the Eu(5D0) level and the ligand states being almost in resonance. The replacement of the p-tert-Bu groups by the electron-attracting nitro groups shifts the ligand-to-metal charge-transfer (LMCT) state of the Eu-contg. compds. to higher energy, which reduces the amt. of mixing between the Eu(7F) and the LMCT states, resulting in a less efficient quenching of the Eu(5D0) luminescence and in a less enhanced 5D0 .rarrw. 7F0 transition. Nevertheless, the latter still exhibits an unusually large oscillator strength (ca. 10⁻⁷, ϵ = 0.84 l-mol-l-cm⁻¹). Europium-to-lanthanide (Ln = Nd, Ho) energy transfer processes in heterodinuclear compds. allow one to est. the intermol. Eu-Ln distance to 10.3-10.5 .ANG., a value close to that reported for the p-tert-butylcalix[8]arene complexes. In conclusion, this study demonstrates the potential of calixarenes as host mols. for spectroscopically active metal ions since a simple modification of the para-substituents induces large differences in the **photophys.** properties of the dinuclear lanthanide complexes.

- ST **photophys** property lanthanide dinuclear complex nitrocalixarene
IT Energy level splitting
 Luminescence
 Ultraviolet and visible spectra
 (**photophys.** properties of lanthanide dinuclear complexes with p-nitro-calix[8]arene)
IT Rare earth compounds
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);
 PROC (Process)
 (complexes, dinuclear; **photophys.** properties of lanthanide dinuclear complexes with p-nitro-calix[8]arene)
IT Energy transfer
 (**photochem.**, **photophys.** properties of lanthanide dinuclear complexes with p-nitro-calix[8]arene)
IT 109081-46-1P
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (in prepn. of lanthanide dinuclear complexes with p-nitro-calix[8]arene)
IT 109081-46-1D, europium and neodymium complexes
 RL: RCT (Reactant)
 (**photophys.** properties of lanthanide dinuclear complexes)
IT 7440-00-8D, Neodymium, calix[8]arene complex, sold soln. with rare earth calixarene complexes 7440-53-1D, Europium, calix[8]arene complex, sold soln. with rare earth calixarene complexes 7440-54-2D, Gadolinium, calix[8]arene complex, sold soln. with rare earth calixarene complexes 7440-60-0D, Holmium, calix[8]arene complex, sold soln. with rare earth calixarene complexes 180140-71-0D, solid solns. with gadolinium and holmium and neodymium and terbium complexes 180140-72-1 180140-73-2 180140-74-3D, solid soln. with europium complex 180140-75-4 180140-76-5 180140-77-6 180140-78-7 180140-79-8D, solid soln. with europium complex 180140-81-2D, solid soln. with europium complex
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);
 PROC (Process)
 (**photophys.** properties of lanthanide dinuclear complexes with p-nitro-calix[8]arene)
IT 68-12-2, DMF, properties 7440-27-9D, Terbium, calix[8]arene complex, sold soln. with rare earth calixarene complexes
 RL: PEP (Physical, engineering or chemical process); PRP (Properties);
 PROC (Process)
 (**photophys.** properties of lanthanide dinuclear complexes with p-nitro-calix[8]arene contg.)
IT **68971-82-4**
 RL: RCT (Reactant)
 (reaction with nitric acid in prepn. of p-nitro-calix[8]arene)

AN 1996:339269 CAPLUS
 DN 125:114047
 TI Photodegradation of calixarenes
 AU Meallier, P.; Godefain, A.; Ehlinger, N.; Perrin, M.
 CS Lab. Photochim. Ind., LACE, UM 9977, Univ. Claude Bernard, Villeurbanne,
 69622, Fr.
 SO Dyes Pigm. (1996), 31(1), 13-17
 CODEN: DYPIDX; ISSN: 0143-7208
 DT Journal
 LA English
 CC 22-8 (Physical Organic Chemistry)
 Section cross-reference(s): 41
 AB Calixarenes are interesting compds. with respect to their high m.ps. and complexing properties. Spectroscopic characteristics and photochem. stability data are reported in these present studies of quantum yield of fluorescence, phosphorescence and photodegrdn. The photodegrdn. occurs from the triplet state. The addn. of a chromophore into the mol., and the presence of a triplet inhibitor, are necessary for any potential use of these compds. in the color industry.
 ST photodegrdn calixarene
 IT Chromophores and Chromophoric systems
 Dyes
 Fluorescence
 Phosphorescence
 Photolysis
 Ultraviolet and visible spectra
 (photodegrdn. of calixarenes)
 IT Cyclophanes
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process)
 (meta-, photodegrdn. of calixarenes)
 IT Energy level
 (singlet, photodegrdn. of calixarenes)
 IT Energy level
 (triplet, photodegrdn. of calixarenes)
 IT 60705-62-6 68971-82-4 78092-53-2 97998-55-5 98013-94-6
 104789-79-9
 RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process)
 (photodegrdn. of calixarenes)
 IT 98-54-4, p-tert-Butylphenol 99-89-8, p-Isopropylphenol
 RL: PRP (Properties)
 (photodegrdn. of calixarenes)
 L4 ANSWER 14 OF 20 CAPLUS COPYRIGHT 2002 ACS
 AN 1994:334992 CAPLUS
 DN 120:334992
 TI Photosensitive resin composition and resist image formation
 IN Kato, Koji; Kasuya, Kei; Isobe, Asao
 PA Hitachi Chemical Co Ltd, Japan
 SO Jpn. Kokai Tokkyo Koho, 9 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM G03F007-022
 ICS G03F007-023; G03F007-30; H01L021-027
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
 Section cross-reference(s): 76
 FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|---|------|----------|-----------------|----------|
| PI | JP 05346664 | A2 | 19931227 | JP 1992-154911 | 19920615 |
| GI | For diagram(s), see printed CA Issue. | | | | |
| AB | The compn. comprises alkali-sol. novolak resin contg. 0-10 wt.% low mol. wt. compn. with mol. wt. > 2000 (as polystyrene), a quinonediazide compd., and phenolic cyclic compd. I (n = 4-8). The compn. is coated, | | | | |

exposed, and developed to form images. The compn. shows high sensitivity, resoln., thermal-resistance, and suitable for pos.-working resist for integrated circuits.

ST resist cyclic phenol compd; quinonediazide novolak resin resist
IT Phenolic resins, uses
RL: USES (Uses)
(novolak, pos.-working **photoresist** contg.)
IT Resists
(photo-, contg. novolak resin and quinonediazide compd. and
cyclic phenol deriv.)
IT 27029-76-1, m-Cresol-p-cresol-formaldehyde copolymer 100346-90-5,
m-Cresol-p-cresol-formaldehyde-2,5-xylenol copolymer 112504-03-7,
m-Cresol-p-cresol-formaldehyde-3,5-xylenol copolymer
RL: USES (Uses)
(pos.-working **photoresist** contg.)
IT 60705-62-6P **68971-82-4P**
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and nitration of)
IT 109051-62-9P 109081-46-1P
RL: PREP (Preparation)
(prepn. of, pos.-working **photoresist** contg.)
IT 98-54-4, p-tert-Butylphenol
RL: RCT (Reactant)
(reaction of, with formaldehyde)
IT 50-00-0, Formaldehyde, reactions
RL: RCT (Reactant)
(reaction of, with tert-butylphenol)

L4 ANSWER 15 OF 20 CAPLUS COPYRIGHT 2002 ACS

AN 1994:148771 CAPLUS

DN 120:148771

TI Method for processing silver halide **photographic** material

IN Nishimura, Motoi; Sato, Koichi

PA Konishiroku Photo Ind, Japan

SO Jpn. Kokai Tokkyo Koho, 36 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03C011-00

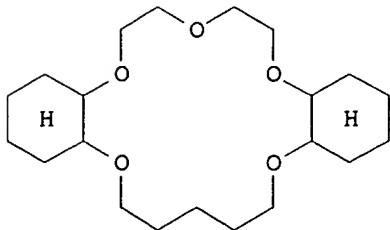
ICS G03C007-38; G03C007-392

CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

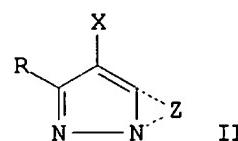
FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-------|-------------|-------|----------|-----------------|----------|
| ----- | ----- | ----- | ----- | ----- | ----- |
| PI | JP 05093995 | A2 | 19930416 | JP 1991-253707 | 19911001 |

GI



I



II

AB The title processing involves (1) treating a silver halide **photog**. material having a silver halide emulsion layer contg. a macrocyclic compd. by a processing soln. with a capability of color development and fixation and (2) stabilization treatment by a stabilizer soln. at a replenishment amt. of 20-1,000 mL/m² said silver halide **photog**.

material. The said macrocyclic compd., e.g. a crown ether (I), which serves as a color image stabilizer, contains C.gtoreq.4 alkyl, alkenyl, or cycloalkyl and has a solv. of .gtoreq.10 in AcOEt at 60.degree.. The said silver halide photog. material contains a color formation coupler [II; Z = a group of nonmetallic atoms required to form an (un)substituted N-contg. heterocyclic ring; X = H, group capable of leaving upon reaction with the oxidized form of a color developing agent]. This processing can markedly reduce the replenishment amt. of a stabilizer soln. in continuous color development, bleaching, and fixation, improves photostability and color reprodn. of dye images formed, and reduces formation of stains during storage and color stains during processing.

ST silver halide photog continuous processing; macrocyclic compd color image stabilizer; stabilizer soln reduced replenishment; crown ether color image stabilizer

IT Crown compounds

Macrocyclic compounds

RL: USES (Uses)

(color image stabilizers, color photog. materials contg.)

IT Photographic paper

(color, contg. macrocyclic compds. as color image stabilizers, for reduced color stains and improved photostability of dye images)

IT Photographic processing

(color, continuous, of color photog. materials contg. macrocyclic compds. as color image stabilizers, with reduced replenishment of stabilizer soln.)

IT Crown compounds

RL: USES (Uses)

(ethers, color image stabilizers, color photog. materials contg.)

IT 296-35-5, 1,4,7,10,13,16-Hexaazacyclooctadecane 7585-39-9,
.beta.-Cyclodextrin 16069-36-6 67722-74-1 **68971-82-4**
147053-86-9 147053-87-0 147053-88-1 147053-89-2 147053-90-5

147053-91-6 147053-92-7 147265-26-7 152930-69-3 153091-10-2

RL: USES (Uses)

(color image stabilizer, color photog. paper contg.)

IT 124351-77-5

RL: TEM (Technical or engineered material use); USES (Uses)

(magenta photog. coupler, color photog. paper contg. macrocyclic compds. and)

L4 ANSWER 16 OF 20 CAPLUS COPYRIGHT 2002 ACS

AN 1993:461678 CAPLUS

DN 119:61678

TI Complexes of lanthanoid salts with macrocyclic ligands. 41.

Photophysical properties of lanthanide dinuclear complexes with p-tert-butylcalix[8]arene

AU Bunzli, Jean Claude G.; Froidevaux, Pascal; Harrowfield, Jack M.

CS Inst. Chim. Miner. Anal., Univ. Lausanne, Lausanne, CH-1005, Switz.

SO Inorg. Chem. (1993), 32(15), 3306-11

CODEN: INOCAJ; ISSN: 0020-1669

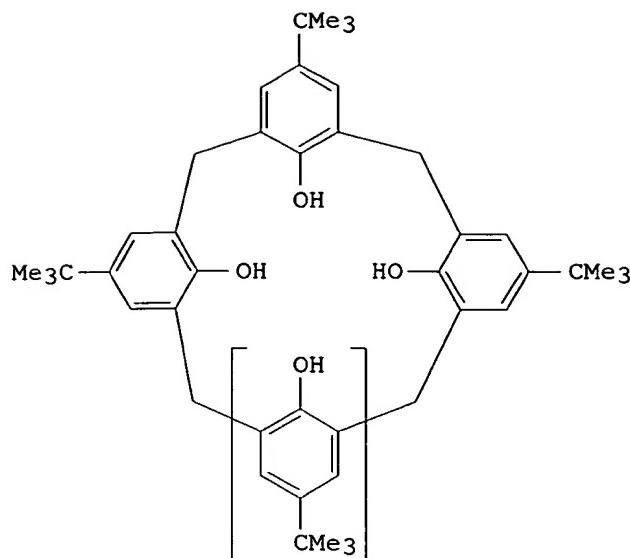
DT Journal

LA English

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 9, 73

GI



- AB The macrocyclic octaphenol p-tert-butylcalix[8]arene (I; LH8) reacted with lanthanide(III) ions in DMF contg. NEt₃ to obtain both homo- and heterodinuclear neutral complexes [(Ln₁xLn₂(2-x)LH₂(DMF)₅] (DMF)_n (Ln = Nd, Eu, Gd, Tb, Ho, Yb), with n = 4 (.alpha.-phase) or 1.5 (.beta.-phase). ICP-AES detn. of the Ln(III) content shows a clear selectivity of the ligand for ions in the middle of the lanthanide series. Luminescence measurements at 77 K suggest that the 2 lanthanide(III) ions encompassed by the ligand are in very similar environments with pseudo C_{3h} symmetry. Small differences in the crystal-field potential are evidenced between the 2 cryst. phases and when a large ion (e.g. Nd) is encapsulated by the ligand. The presence of a low-lying metal-to-ligand charge-transfer state (MLCT) in the Eu-contg. complexes at .apprx.20,000 cm⁻¹ induces unusual spectroscopic properties. Very large absorption probabilities (.apprx.10⁻⁶) were detd. for the Eu(III) transitions, and the Judd-Ofelt theory for f-f transitions fails to explain the very large value of the .OMEGA.2 parameter (448 .times. 10⁻²⁰ cm²). In DMF soln., an efficient energy transfer from the ligand to Tb(III) occurs and makes the Tb(III) calixarene complex an interesting luminescent label for time-resolved fluoroimmunoassays.
- ST luminescence lanthanide homodinuclear heterodinuclear calixarene complex; macrocycle octaphenol lanthanide homodinuclear heterodinuclear complex; phenol octa macrocycle lanthanide complex; electronic transition lanthanide homodinuclear heterodinuclear calixarene; fluoroimmunoassay time resolved label lanthanide calixarene
- IT Fluorescence
Phosphorescence
(of calixarene in relation to luminescence of its terbium and ytterbium homodinuclear complexes)
- IT Luminescence
(of lanthanide homo- and heterodinuclear calixarene complexes)
- IT Ultraviolet and visible spectra
(of lanthanide homo- and heterodinuclear calixarene complexes, charge transfer in)
- IT Rare earth metals, compounds
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(calixarene complexes, homo- and heterodinuclear, prepn. and photophys. properties of)
- IT Energy level
Energy level splitting
(crystal-field, of europium-lanthanide heterodinuclear calixarene complexes)
- IT Energy level transition
(f-f, of europium calixarene complex, Judd-Ofelt theory in relation to)
- IT Cyclophanes

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (meta-, rare earth metal complexes, homo- and heterodinuclear, prepn.
 and photophys. properties of)
 IT 148801-64-3 148801-65-4
 RL: PRP (Properties)
 (electronic emission spectra of)
 IT 148801-64-3
 RL: PRP (Properties); PRP (Properties)
 (electronic emission spectra of)
 IT 111004-80-9
 RL: PRP (Properties)
 (electronic transition and emission spectrum of, in soln. and crystal)
 IT 68971-82-4, p-tert-Butylcalix[8]arene
 RL: PRP (Properties); RCT (Reactant)
 (fluorescence and phosphorescence and reaction of, with lanthanides in
 presence of triethylamine)
 IT 148801-53-0DP, solid solns. with rare earth analogs 148801-55-2DP, solid
 solns. with europium and terbium analogs 148801-57-4DP, solid solns.
 with rare earth analogs 148801-59-6DP, solid solns. with europium and
 terbium analogs 148801-61-0DP, solid solns. with terbium analog
 148801-63-2DP, solid solns. with europium analog
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (prepn. and photophys. properties of)

L4 ANSWER 17 OF 20 CAPLUS COPYRIGHT 2002 ACS

AN 1992:215912 CAPLUS

DN 116:215912

TI Soluble calixarene derivatives and films prepared from them

IN Mita, Naoko

PA NEC Corp., Japan

SO Eur. Pat. Appl., 9 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM C07C069-12

ICS C08J005-18

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 25, 74

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|----------------|------|----------|-----------------|----------|
| PI | EP 456497 | A2 | 19911113 | EP 1991-304191 | 19910509 |
| | EP 456497 | A3 | 19930331 | | |
| | EP 456497 | B1 | 19950705 | | |
| | R: DE, FR, GB | | | | |
| | JP 04015232 | A2 | 19920120 | JP 1990-120310 | 19900510 |
| | JP 06053819 | B4 | 19940720 | | |
| | JP 04128253 | A2 | 19920428 | JP 1990-249151 | 19900919 |
| | JP 07023340 | B4 | 19950315 | | |
| | US 5143784 | A | 19920901 | US 1991-694491 | 19910502 |
| PRAI | JP 1990-120310 | | 19900510 | | |
| | JP 1990-249151 | | 19900919 | | |

OS MARPAT 116:215912

AB The title derivs., esp. acetylated methylcalix[n]arenes ($n = 4-6$), show good solv. in org. solvents, form films with good heat resistance and hardness, and form neg. patterns upon irradn. and dissoln. of unirradiated regions with an org. solvent. Refluxing 18.7 g p-methylphenol with 9 g paraformaldehyde in xylene in the presence of aq. KOH soln. for 4 h, followed by reaction with Ac₂O, gave acetylated methylcalix[6]arene which was dissolved in PhMe and spin coated on Si to give a hard film.

ST calixarene deriv prepn solv; formaldehyde methylphenol calixarene prepn; resist neg calixarene deriv; film calixarene deriv polymer; polymn calixarene deriv resist; irradn polymn calixarene resist

IT Cyclophanes

RL: PREP (Preparation)
 (meta-, derivs., prepn. of sol., for films and resists)

IT Resists

IT (photo-, neg.-working, calixarene derivs. for
Polymerization
(radiochem., of calixarene derivs.)
IT 79942-31-7
RL: USES (Uses)
(methylcalixarene)
IT 60705-62-6P 68971-82-4P 82452-92-4P 96627-08-6P,
Calix[6]arene 141137-71-5P
RL: PREP (Preparation)
(prepn. of sol., for films and neg. resist)
IT 141137-71-5DP, polymers
RL: PREP (Preparation)
(prepn. of, for films and neg. resist)
IT 98-54-4, p-tert-Butylphenol 106-44-5, p-Methylphenol, reactions
108-95-2, Phenol, reactions 140-66-9, p-tert-Octylphenol
RL: RCT (Reactant)
(reaction of, with formaldehyde, in prepn. of calixarene derivs.)
IT 108-24-7, Acetic anhydride
RL: RCT (Reactant)
(reaction of, with methylcalixarenes)
IT 30525-89-4, Paraformaldehyde
RL: RCT (Reactant)
(reaction of, with phenol derivs., in prepn. of calixarenes)

L4 ANSWER 18 OF 20 CAPLUS COPYRIGHT 2002 ACS
AN 1989:440504 CAPLUS
DN 111:40504
TI Calix[n]arenes - new light stabilizers for polyolefins
AU Seiffarth, K.; Schulz, M.; Goermar, G.; Bachmann, J.
CS VEB Leuna-Werke Walter Ulbricht, Leuna, 4220, Ger. Dem. Rep.
SO Polym. Degrad. Stab. (1989), 24(1), 73-80
CODEN: PDSTDW; ISSN: 0141-3910
DT Journal
LA English
CC 37-6 (Plastics Manufacture and Processing)
AB Cyclic phenol-formaldehyde condensates, the so-called calix[n]arenes (n = 4, 6, 8), are light stabilizers for polyolefins. Their stabilizing power depends on the ring size and on the substituent in the p-position of the phenolic units in the ring system. The best stabilizers of this type are as effective as 2-hydroxybenzophenones. During processing of the polymer, calix[n]arenes are oxidized by hydroperoxides to form carbonyl contg. compds., which are the actual light stabilizers. Thus, a cascade mechanism is suggested for calix[n]arenes as light stabilizers.
ST calixarene light stabilizer polyolefin; antioxidative efficiency
calixarene light stabilizer
IT Light stabilizers
(calixarenes, for LDPE, antioxidative efficiency of, ring substitution effect on)
IT Antioxidants
(calixarenes, for LDPE, efficiency of, ring substitution effect on)
IT Oxidation, aut-
(of LDPE, effect of calix[n]arenes on induction periods of)
IT Oxidation
(of calix[n]arenes, efficiency as light stabilizers for LDPE in relation to)
IT Cyclophanes
RL: USES (Uses)
(meta-, light stabilizers, for LDPE, antioxidative efficiency of, ring substitution effect on)
IT Polymer degradation
(oxidative, photochem., of LDPE, effect of calix[n]arenes on)
IT 119-64-2, Tetralin
RL: RCT (Reactant)
(initiated oxidn. of, in presence of calix[n]arenes as light stabilizers)
IT 42607-92-1 53255-02-0 60705-62-6 68971-82-4 68971-85-7
74568-07-3 77769-14-3 78092-53-2 82452-92-4 82452-93-5

93503-77-6 121612-86-0 121612-87-1

RL: USES (Uses)

(light stabilizers, for LDPE, antioxidative efficiency of)

IT 9002-88-4, LDPE

RL: USES (Uses)

(low-d., light stabilizers for Mirathen A1 21 FA, calix[n]arenes as, antioxidative efficiency of)

IT 75-91-2, tert-Butylhydroperoxide

RL: USES (Uses)

(oxidn. of calix[n]arenes in presence of, antioxidative efficiency as light stabilizers for LDPE in relation to)

L4 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2002 ACS

AN 1989:76754 CAPLUS

DN 110:76754

TI Phenolic calixarenes as **photostabilizers** of polymers and organic materials

IN Goermar, Gerhard; Seiffarth, Klaus; Bachmann, Joerg; Schulz, Manfred; Raedler, Klaus Peter

PA VEB Leuna-Werke "Walter Ulbricht", Ger. Dem. Rep.

SO Ger. (East), 5 pp.

CODEN: GEXXA8

DT Patent

LA German

IC ICM C08K005-15

CC 37-6 (Plastics Manufacture and Processing)

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|------------------|------|----------|-----------------|----------|
| PI | DD 254739 | A1 | 19880309 | DD 1986-296981 | 19861203 |
| OS | MARPAT 110:76754 | | | | |

AB Phenolic calixarenes (d.p. 3-8), optionally bearing hydrocarbyl groups para to the OH group, treated with H₂O₂, hydroperoxides, or peracids, are **photostabilizers** for polymers. Refluxing 1 g tetra-4-tert-butyltetra-1-hydroxycalix(4)arene and 5 g tert-BuOOH in 30 mL PhCl for 24 h gave 490 mg oxidn. product (I) whose IR spectrum showed CO and OH peaks. Low-d. polyethylene contg. 0.3% I required 1150 h Xenotest exposure for the extinction coeff. of the CO band (1720 cm⁻¹) of the IR spectrum to reach 0.1; vs. 450 without I.

ST antioxidant light stabilizer polymer; calixarene oxidized stabilizer polymer; polyethylene antioxidant calixarene oxidized; peroxide oxidn calixarene; hydroperoxide oxidn calixarene; peracid oxidn calixarene

IT Antioxidants

Light stabilizers

(oxidized phenolic calixarenes, for polymers)

IT Hydroperoxides

RL: RCT (Reactant)

(oxidn. by, of phenolic calixarenes for **photooxidn.** stabilizers for polymers)

IT Polyamides, uses and miscellaneous

Polyesters, uses and miscellaneous

Polymers, uses and miscellaneous

RL: USES (Uses)

(**photooxidn.** stabilizers for, oxidized phenolic calixarenes as)

IT Cyclophanes

RL: USES (Uses)

(meta-, hydroxy, oxidized, **photooxidn.** stabilizers for polymers)

IT Alkenes, polymers

RL: USES (Uses)

(polymers, **photooxidn.** stabilizers for, oxidized phenolic calixarenes as)

IT 74-85-1D, Ethylene, polymers with .alpha.-olefins

RL: USES (Uses)

(linear low-d., **photooxidn.** stabilizers for, oxidized phenolic calixarenes as)

IT 75-91-2, tert-Butylhydroperoxide 7722-84-1, Hydrogen peroxide, reactions
 RL: RCT (Reactant)
 (oxidn. by, of phenolic calixarenes for **photooxidn.**
 stabilizers for polymers)

IT 9002-88-4 9003-56-9
 RL: USES (Uses)
 (**photooxidn.** stabilizers for, oxidized phenolic calixarenes
 as)

IT 60705-62-6D, oxidized **68971-82-4D**, oxidized 78092-53-2D,
 oxidized

RL: USES (Uses)
 (**photooxidn.** stabilizers, for polymers)

L4 ANSWER 20 OF 20 CAPLUS COPYRIGHT 2002 ACS
 AN 1985:505708 CAPLUS
 DN 103:105708
 TI Preparation of 4-tert-butyloxocalix[n]arenes and their properties as
 UV-absorbers

AU Ninagawa, Akira; Cho, Kazuhiro; Matsuda, Haruo
 CS Fac. Eng., Osaka Univ., Suita, 565, Japan
 SO Makromol. Chem. (1985), 186(7), 1379-85
 CODEN: MACEAK; ISSN: 0025-116X

DT Journal
 LA English
 CC 37-6 (Plastics Manufacture and Processing)
 Section cross-reference(s): 25

GI For diagram(s), see printed CA Issue.

AB The calixarenes I ($x = 3$, $y = 1$) (II) [98085-82-6], I ($x = 5$, $y = 1$)
 (III) [98085-83-7], and octa-tert-butyl-octahydroxy-trioxocalix[8]arene
 (IV) were prep'd. from 4-tert-butylcalix[4]-, [6]- and [8]-arenes from
 4-tert-butylphenol. 5,5'-Di-tert-butyl-2,2'-dihydroxybenzophenone (V)
 [25446-98-4] was prep'd. via 5,5'-di-tert-butyl-2,2'-dimethoxybenzophenone
 (VI) [98085-85-9] from bis(5-tert-butyl-2-methoxyphenyl)methane
 [98085-84-8]. 1,4-Dioxane solns. of II, III, IV, V, and VI were
 irradiated. The **photostability** of III and IV in dioxane was
 better than that of II, V, or VI. A PVC [9002-86-2] film contg. 0.06
 mmol III/g was most stable to **photooxidn.**

ST PVC light stabilizer calixarene; benzophenone dibutyldihydroxy light
 stabilizer

IT Light stabilizers
 (oxocalixarenes, prepn. and activity of)

IT 25446-98-4P **68971-82-4DP**, oxidized 98085-82-6P 98085-83-7P
 98085-85-9P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (light stabilizer, prepn. and properties of)

IT 9002-86-2
 RL: USES (Uses)
 (light stabilizers for, calixarenes as)

IT 60705-62-6 78092-53-2 98085-84-8
 RL: RCT (Reactant)
 (oxidn. of)

```

=> file uspat
'USPAT' IS AN AMBIGUOUS FILE OR CLUSTER NAME
 USPATALL      - US Patent Full Text Cluster
 USPAT2        - U.S. Patents Latest Publications from 2001 - present
 USPATFULL     - U.S. Patents Original Publications from 1971 - present
ENTER FILE OR CLUSTER NAME (IGNORE):uspatall
COST IN U.S. DOLLARS          SINCE FILE          TOTAL
                                ENTRY             SESSION
FULL ESTIMATED COST          54.42            88.39
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) SINCE FILE          TOTAL
                                                ENTRY             SESSION
CA SUBSCRIBER PRICE          -12.39           -12.39

```

FILE 'USPATFULL' ENTERED AT 12:58:16 ON 23 JAN 2002
CA INDEXING COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'USPAT2' ENTERED AT 12:58:16 ON 23 JAN 2002
CA INDEXING COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

=> s 12
L6 18 L2

=> d pn,ab, kwic 1-18

L6 ANSWER 1 OF 18 USPATFULL

PI US 5952526 19990914

AB Para sulfonated calixarenes are obtained in a one-step reaction directly from para blocked calixarenes by treating same with a sulfonating agent, such as concentrated sulfuric acid, to perform an ipso-electrophilic substitution.

IT 60705-62-6 **68971-82-4**

(prepn. of sulfonated calixarenes)

L6 ANSWER 2 OF 18 USPATFULL

PI US 5952145 19990914

AB Charge control agent and toner for developing electrostatic images comprising such a charge control agent whose active ingredient is a calix (n) arene compound of formula I: ##STR1## wherein x+y=n; x and y each is an integer of 1 or more; n is an integer of 4-8; the x repeat units and y repeat units can be arranged in any order; R.sup.1 and R.sup.2 each is H, C.sub.1-12 alkyl, C.sub.2-12 alkenyl, C.sub.7-12 aralkyl, phenyl, C.sub.4-8 cycloalkyl, halogen, nitro, amino, alkyl- or phenyl-substituted amino, --Si(CH.sub.3).sub.3, or --SO.sub.3 H; and of the n R radicals in the --OR groups, 1 to (n-1) are H, with the remaining (n-1) to 1 being alkyl, alkenyl, phenyl, aralkyl, cycloalkyl, --COR.sup.3 [wherein R.sup.3 is H, alkyl, alkenyl, phenyl, aralkyl, or cycloalkyl], --Si(CH.sub.3).sub.3, --(CH.sub.2).sub.m COOR.sup.4 [wherein R.sup.4 is H or lower alkyl and m is an integer of 1-3], --(CH.sub.2 CH.sub.2 O).sub.r H [wherein r is an integer of 1-10], or ##STR2##

IT 74-88-4, Methyl iodide, reactions 98-54-4, p-tert-Butylphenol

100-39-0, Benzyl bromide 106-89-8, Epichlorohydrin, reactions

106-95-6, Allyl bromide, reactions 27193-28-8, tert-Octylphenol

30525-89-4, Paraformaldehyde **68971-82-4**, p-tert-

Butylcalix[8]arene

(reaction in prepn. of calix[n]arene charge-controlling agents for electrostatog. toners)

L6 ANSWER 3 OF 18 USPATFULL

PI US 5844056 19981201

AB The synthesis and characterization of novel linear polymers and multi-arm star polymers comprising polyisobutylene arms connected to a well-defined calixarene core are described. The polymers are directly telechelic. They synthesis has been achieved using the "core first" method wherein multifunctional calix[n]arene (where n=4 to 16) derivatives or their monofunctional analogues are used as initiators which, in conjunction with certain Freidel-Crafts acids as co-initiators, induce the living polymerization of isobutylene or a similar carbocationic polymerizable monomer. Novel initiators suitable for inducing the polymerization are also described.

IT **68971-82-4P** 82452-93-5P 106750-74-7P 106750-79-2P

(star polymers having multiple polyisobutylene arms emanating from a calixarene core and the synthesis thereof)

L6 ANSWER 4 OF 18 USPATFULL

PI US 5804664 19980908

AB The synthesis and characterization of novel linear polymers and multi-arm star polymers comprising polyisobutylene arms connected to a well-defined calixarene core are described. The synthesis has been achieved using the "core first" method wherein multifunctional

calix[n]arene (where n=4 to 16) derivatives or their monofunctional analogues are used as initiators which, in conjunction with certain Freidel-Crafts acids as co-initiators, induce the living polymerization of isobutylene or a similar carbocationic polymerizable monomer to form star polymers or block copolymers. Novel initiators suitable for inducing the polymerization are also described.

IT 68971-82-4P 82452-93-5P 106750-74-7P 106750-79-2P
(star polymers having multiple polyisobutylene arms emanating from a calixarene core and the synthesis thereof)

L6 ANSWER 5 OF 18 USPATFULL

PI US 5780403 19980714

AB A compound comprised of a moiety derived from an organic nitrogen-containing base and a calixarene moiety in which the hydroxyl substituent (or substituents) is (are) substituted by oligoether chains. Typically, the compounds are complexes of the formula (I): ##STR1## wherein Y is a divalent bridging group; R.³ is hydrogen, hydrocarbyl or a hetero-substituted hydrocarbyl group;

either (1) R.¹ is OR.⁵ and R.² and R.⁴ are independently either hydrogen, hydrocarbyl or hetero-substituted hydrocarbyl, or (2) R.¹ is either hydrogen, hydrocarbyl or hetero-substituted hydrocarbyl, and either both R.² and R.⁴ are OR.⁵ or one of R.² and R.⁴ is OR.⁵ and the other is --OH, R.⁵ being --(Z)._nR.⁶ in which Z is at least one alkylene oxide group, R.⁶ is hydrocarbyl or hetero-substituted hydrocarbyl and n is an integer in the range from 1 to 10; x is an integer in the range from 3 to 12; and X is a moiety derived from an organic nitrogen-containing base.

IT 68971-82-4P, p-tert-Butylcalix[8]arene
(ash-free detergents, their prepn., and use in lubricating oil compns.)

L6 ANSWER 6 OF 18 USPATFULL

PI US 5767034 19980616

AB An olefin polymerization catalyst includes a halogen-containing magnesium compound; a titanium compound; and an additive selected from the group consisting of (a) a mixture of an aluminum alkoxide compound and polydimethylsiloxane, (b) an aluminosiloxane, (c) the reaction product of an aluminum alkyl and a calixarene, (d) the reaction product of an aluminum alkyl and a cyclodextrin, and mixtures of (a)-(d).

IT 75-24-1DP, Trimethylaluminum, reaction products with calixarene or cyclodextrin 555-31-7DP, Aluminum triisopropoxide, reaction products with trimethylsilyl acetate 2754-27-0DP, Trimethylsilyl acetate, reaction products with aluminum triisopropoxide 7585-39-9DP, .beta.-Cyclodextrin, reaction products with trimethylaluminum 68971-82-4DP, 4-tert-Butylcalix[8]arene, reaction products with trimethylaluminum
(olefin polymn. catalysts)

L6 ANSWER 7 OF 18 USPATFULL

PI US 5711927 19980127

AB This invention relates to a method of purifying a fullerenes by recrystallization of a fullerene-complexing agent complex and to a fullerene-complexing agent complex.

IT 68971-82-4, p-tert-Butyl-calix[8]arene 78092-53-2,
p-tert-Butyl-calix[6]arene
(complexing agent; process for purifying C60-fullerenes and mixts. of C60-fullerenes and higher fullerenes with a complexing agent, esp. resorcinol-derived calixarene)

L6 ANSWER 8 OF 18 USPATFULL

PI US 5622687 19970422

AB Calixarene conjugates useful for imaging, particularly magnetic resonance imaging (MRI) and computed tomography (CT) are described. Said calixarene conjugates comprise (i) a calixarene backbone, and (ii) at least one imaging moiety linked thereto, and may be of the formula: ##STR1## wherein at least one of the R.¹ and R.⁴ substituents

comprises an imaging moiety, the remaining R.sup.1 and R.sup.4 substituents are spectator groups, J is an ortho-linker, and n is an integer from 4 to 8. Imaging moieties useful for CT imaging include those comprising two or more iodine atoms. Imaging moieties useful for MRI include (i) organic moieties comprising four or more fluorine atoms; (ii) nitroxyl spin labeled moieties; and (iii) metal chelate moieties.

IT 68971-82-4P 82452-93-5P 105190-41-8P 106750-74-7P
128936-82-3P 128936-84-5P
(prepn. and reaction; calixarene conjugates for MRI and CT diagnostic imaging agents, and prep. thereof)

L6 ANSWER 9 OF 18 USPATFULL

PI US 5489612 19960206

AB Calixarene derivatives, their synthesis and use as chloride channel blockers are described. Preferred calixarene derivatives are of the formula: ##STR1## wherein R is an acidic group or salt thereof, such as SO.₃ X or R.¹ SO.₃ X where X is H or Na, and R.¹ is ##STR2## where m=1-2, and R.² and R.³ the same or different is each H or a C.₁₋₄ alkyl, or a nitrogen-containing group of the formula ##STR3## or A, wherein R.⁵ is a C.₁₋₄ alkyl, R.⁶ is a C.₁₋₄ alkyl and A is ##STR4## where R.⁷ and R.⁸, the same or different each is H or a C.₁₋₄ alkyl, and R.⁹ and R.¹⁰, the same or different, each is H or a C.₁₋₄ alkyl; R' is H or a C.₁₋₄ alkyl; and n is an integer of 4-8, preferably 4, 6 or 8.

IT 96107-96-9 105190-41-8 110242-20-1
(acidic calixarene prep. for chloride-channel blockers)

L6 ANSWER 10 OF 18 USPATFULL

PI US 5482520 19960109

AB The present invention provides a chemical composition comprising a t-butyl calix[8]arene encapsulated cyanuric acid derivatized with at least one C.₁₋₄ -C.₁₋₅₀ n-alkyl halide, n-alkaryl halide, aryl halide or polyoxyalkylene halide.

IT 68971-82-4P
(derivatized t-Bu calixarene encapsulated cyanuric acid to nitrogen oxides redn. in diesel combustion)

IT 108-80-5, Cyanuric acid 68971-82-4D, derivs.
(derivatized t-Bu calixarene encapsulated cyanuric acid to nitrogen oxides redn. in diesel combustion)

L6 ANSWER 11 OF 18 USPATFULL

PI US 5415909 19950516

AB The interlayer film comprises 100 weight parts of ethylene-vinyl acetate copolymer or ethylene-alkyl(meth)acrylate copolymer, 0.01 to 4 weight parts of a transparency improvement agent, and 0.01 to 4 weight parts of a silane coupling agent which contains one or more types of groups selected from amino groups, glycidyl groups and mercapto groups. The laminated glass comprises said interlayer film laminated between 2 transparent plates selected from glass plates and synthetic resin plates.

IT 19046-64-1 19342-55-3 32647-68-0, Tribenzyldenesorbitol 54365-47-8
60705-62-6, 4-tert-Butyl calix[4]arene 68971-82-4, 4-tert-Butyl calix[8]arene 78092-53-2, 4-tert-Butyl calix[6]arene 87826-41-3
88608-79-1 161471-88-1
(transparency improver; room-temp. storage-stable interlayer film for manuf. of laminated glass)

L6 ANSWER 12 OF 18 USPATFULL

PI US 5409959 19950425

AB A method of inhibiting thrombus formation in a mammalian subject. The method involves administering to the subject a therapeutically effective dose of a calix(n)arene compound derivatized, at its ring positions meta to the bridge attachments to the ring, with polar substituents having terminal sulfonate groups, including esters and amides which are cleavable in vivo.

IT 98-67-9, p-Hydroxybenzenesulfonic acid 100-97-0,
Hexamethylenetetramine, reactions 129-96-4, Disodium chromotropate

148-25-4, Chromotropic acid 281-54-9, Calix(4)arene 298-12-4,
Glyoxylic acid 612-14-6, 1,2-Benzenedimethanol 1120-71-4,
Propane-1,3-sultone 2203-14-7 21500-57-2 24566-90-3 60705-62-6,
4-tert-Butylcalix(4)arene 105190-41-8 109894-43-1
(antithrombotic calix(n)arene derivs.)

L6 ANSWER 13 OF 18 USPATFULL

PI US 5350657 19940927

AB In toner for developing an electrostatic latent image, at least an organic charge-controlling agent having a BET specific surface area of 15 to 80 m.sup.2 /g and inorganic fine particles having a BET specific surface area of 10 to 150 m.sup.2 /g are fixed and/or film-formed on the surface of core particles mainly composed of thermoplastic resin.

IT 68971-82-4 89107-32-4, Bontron S 34 150569-08-7

(electrophotog. developer toner grain coated with, charge-controlling agent)

L6 ANSWER 14 OF 18 USPATFULL

PI US 5205946 19930427

AB Non-sulphurized overbased metal salts of sulphur-free calixarenes having a substituent hydroxyl group or groups available for reaction with metal base and their preparation are claimed. The salts are useful as additives to lubricating oils by reason of their acids neutralization capability, their detergent and their antioxidant properties.

IT 68971-82-4D, overbased metal salts 78092-53-2D, overbased metal salts 93503-76-5D, overbased metal salts 93503-77-6D, overbased metal salts 102622-21-9D, overbased metal salts 102622-22-0D, overbased metal salts 102622-23-1D, overbased metal salts 138948-67-1D, overbased metal salts

(detergents, for lubricating oils)

L6 ANSWER 15 OF 18 USPATFULL

PI US 5143784 19920901

AB A novel calixarene derivative, viz. acetylated methyl-calix[n]arene (n is from 4 to 8), exhibits high solubilities in various organic solvents. A film of this compound can easily be formed by a conventional solution coating method such as spin coating, and the obtained film is hard and heat-resistant. A pattern of negative type can be formed in the obtained film by selectively irradiating the film with a high-energy ray such as ion beam, electron beam or X-ray to polymerize and insolubilize the irradiated regions and then removing the unirradiated region by dissolution in an organic solvent.

IT 60705-62-6P 68971-82-4P 82452-92-4P 96627-08-6P,

Calix[6]arene 141137-71-5P

(prepn. of sol., for films and neg. resist)

L6 ANSWER 16 OF 18 USPATFULL

PI US 5114601 19920519

AB Non-sulphurized overbased metal salts of sulphur-free calixarenes having a substituent hydroxyl group or groups available for reaction with metal base are claimed. The salts are useful as additives to lubricating oils by reason of their acids neutralization capability, their detergent and their antioxidant properties.

IT 68971-82-4D, overbased metal salts 78092-53-2D, overbased metal salts 93503-76-5D, overbased metal salts 93503-77-6D, overbased metal salts 102622-21-9D, overbased metal salts 102622-22-0D, overbased metal salts 102622-23-1D, overbased metal salts 138948-67-1D, overbased metal salts

(detergents, for lubricating oils)

L6 ANSWER 17 OF 18 USPATFULL

PI US 5049467 19910917

AB A toner for use in the development of electrostatic latent images containing at least one calix (n) arene compound. The compound is almost colorless, dispersible in the toner resin, and compatible with the toner resin, and does not contain metals, so that the toner obtained has stability against environmental changes and excellent stability on

storage. The toner can be used to form images that are clear, the fine lines of which have good reproducibility.

IT 68971-82-4 78092-53-2 93503-76-5 131957-03-4
(as charge controller for electrophotog. toner)

L6 ANSWER 18 OF 18 USPATFULL

PI US 4477377 19841016

AB A process of recovering cesium ions from mixtures of ions containing them and other ions, e.g., a solution of nuclear waste materials, which comprises establishing a separate source phase containing such a mixture of ions, establishing a separate recipient phase, establishing a liquid membrane phase in interfacial contact with said source and recipient phases, said membrane phase containing a ligand, preferably a selected calixarene as depicted in the drawing, maintaining said interfacial contact for a period of time long enough to transport by said ligand a substantial portion of the cesium ion from the source phase to the recipient phase, and recovering the cesium ion from the recipient phase. The separation of the source and recipient phases may be by the membrane phase only, e.g., where these aqueous phases are emulsified as dispersed phases in a continuous membrane phase, or may include a physical barrier as well, e.g., an open-top outer container with an inner open-ended container of smaller cross-section mounted in the outer container with its open bottom end spaced from and above the closed bottom of the outer container so that the membrane phase may fill the outer container to a level above the bottom of the inner container and have floating on its upper surface a source phase and a recipient phase separated by the wall of the inner container as a physical barrier. A preferred solvent for the ligand is a mixture of methylene chloride and carbon tetrachloride.

IT 60705-62-6 68971-82-4 78092-53-2

(fission product recovery with membrane of)

=> dhis

DHIS IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system.

For a list of commands available to you in the current file, enter "HELP COMMANDS" at an arrow prompt (>).

=> d his

(FILE 'HOME' ENTERED AT 12:53:31 ON 23 JAN 2002)

FILE 'REGISTRY' ENTERED AT 12:53:36 ON 23 JAN 2002

L1 69 S CALIX AND HYDROXY

L2 13 S L1 AND 8

FILE 'CAPLUS' ENTERED AT 12:56:07 ON 23 JAN 2002

L3 302 S L2

L4 20 S L3 AND PHOTO?

L5 1339 S L1

FILE 'USPATFULL, USPAT2' ENTERED AT 12:58:16 ON 23 JAN 2002

L6 18 S L2

=> log y

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|----------------------|------------------|---------------|
|----------------------|------------------|---------------|

| | | |
|---------------------|-------|--------|
| FULL ESTIMATED COST | 32.44 | 120.83 |
|---------------------|-------|--------|

| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
|--|------------------|---------------|
|--|------------------|---------------|

| | | |
|---------------------|------|--------|
| CA SUBSCRIBER PRICE | 0.00 | -12.39 |
|---------------------|------|--------|

STN INTERNATIONAL LOGOFF AT 12:59:10 ON 23 JAN 2002

Trying 3106016892...Open

Welcome to STN International! Enter x:x

LOGINID: sssptau156cxh

PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * * * * * * * * * Welcome to STN International * * * * * * * * * * * * *

NEWS 1 Web Page URLs for STN Seminar Schedule - N. America
NEWS 2 Sep 17 IMSworld Pharmaceutical Company Directory name change to PHARMASEARCH
NEWS 3 Oct 09 Korean abstracts now included in Derwent World Patents Index
NEWS 4 Oct 09 Number of Derwent World Patents Index updates increased
NEWS 5 Oct 15 Calculated properties now in the REGISTRY/ZREGISTRY File
NEWS 6 Oct 22 Over 1 million reactions added to CASREACT
NEWS 7 Oct 22 DGENE GETSIM has been improved
NEWS 8 Oct 29 AAASD no longer available
NEWS 9 Nov 19 New Search Capabilities USPATFULL and USPAT2
NEWS 10 Nov 19 TOXCENTER(SM) - new toxicology file now available on STN
NEWS 11 Nov 29 COPPERLIT now available on STN
NEWS 12 Nov 29 DWPI revisions to NTIS and US Provisional Numbers
NEWS 13 Nov 30 Files VETU and VETB to have open access
NEWS 14 Dec 10 WPINDEX/WPIDS/WPIX New and Revised Manual Codes for 2002
NEWS 15 Dec 10 DGENE BLAST Homology Search
NEWS 16 Dec 17 WELDASEARCH now available on STN
NEWS 17 Dec 17 STANDARDS now available on STN
NEWS 18 Dec 17 New fields for DPCI
NEWS 19 Dec 19 CAS Roles modified
NEWS 20 Dec 19 1907-1946 data and page images added to CA and CAplus

NEWS EXPRESS August 15 CURRENT WINDOWS VERSION IS V6.0c,
CURRENT MACINTOSH VERSION IS V6.0 (ENG) AND V6.0J (JP),
AND CURRENT DISCOVER FILE IS DATED 07 AUGUST 2001
NEWS HOURS STN Operating Hours Plus Help Desk Availability
NEWS INTER General Internet Information
NEWS LOGIN Welcome Banner and News Items
NEWS PHONE Direct Dial and Telecommunication Network Access to STN
NEWS WWW CAS World Wide Web Site (general information)

Enter NEWS followed by the item number or name to see news on that specific topic.

All use of STN is subject to the provisions of the STN Customer agreement. Please note that this agreement limits use to scientific research. Use for software development or design or implementation of commercial gateways or other similar uses is prohibited and may result in loss of user privileges and other penalties.

FILE 'HOME' ENTERED AT 13:03:07 ON 23 JAN 2002

FILE 'REGISTRY' ENTERED AT 13:03:14 ON 23 JAN 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2002 American Chemical Society (ACS)

STRUCTURE FILE UPDATES: 20 JAN 2002 HIGHEST RN 385365-97-9
DICTIONARY FILE UPDATES: 22 JAN 2002 HIGHEST RN 385365-97-9

TSCA INFORMATION NOW CURRENT THROUGH July 7, 2001

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Calculated physical property data is now available. See HELP PROPERTIES
for more information. See STNote 27, Searching Properties in the CAS
Registry File, for complete details:

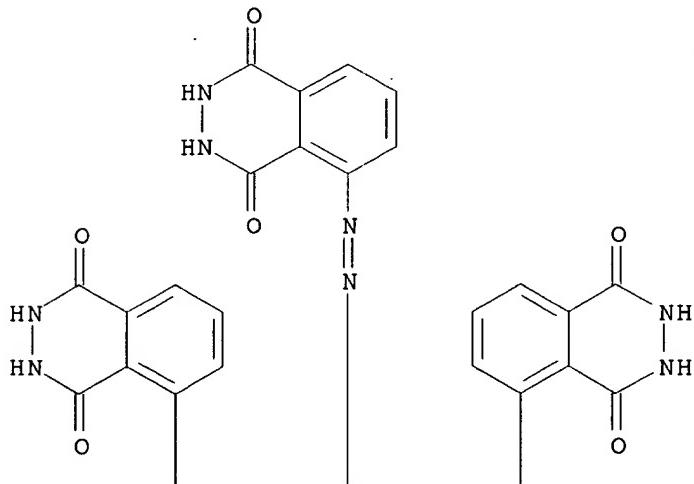
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

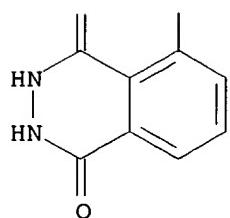
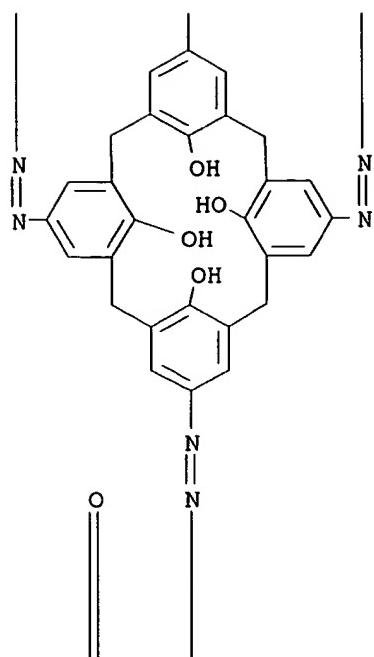
```
=> s calix and hydroxy not 8
    240 CALIX
    2505693 HYDROXY
    1812692 8
L1      56 CALIX AND HYDROXY NOT 8
```

```
=> d scan
```

```
L1  56 ANSWERS  REGISTRY  COPYRIGHT 2002 ACS
IN  1,4-Phthalazinedione, 5,5',5'',5'''-[(25,26,27,28-
     tetrahydroxypentacyclo[19.3.1.13.7.19,13.115,19]octacosa-
     1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-5,11,17,23-
     tetrail)tetraakis(azo)]tetrakis[2,3-dihydro- (9CI)
MF   C60 H40 N16 O12
```

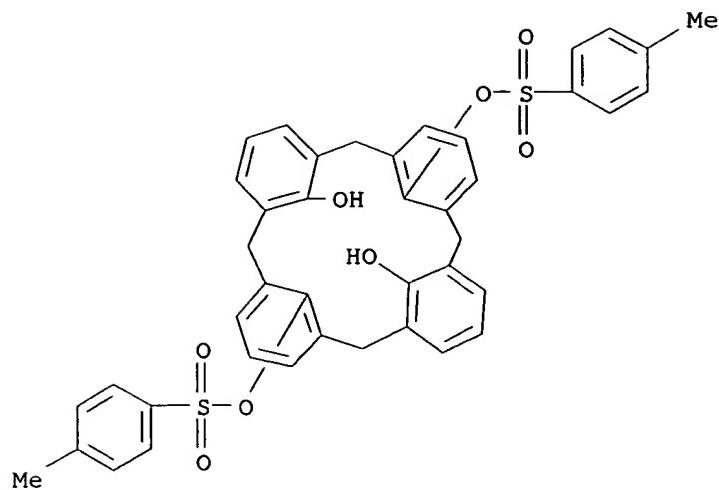
PAGE 1-A





HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):5

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
5,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 25,27-bis(4-
methylbenzenesulfonate) (9CI)
MF C42 H36 O8 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS

IN Pregn-4-ene-3,20-dione, 11-hydroxy-, (11. β .)-, compd. with
5,11,17,23,29,35-hexakis(1,1-dimethylethyl)heptacyclo[31.3.1.13,7.19,13.11
5,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),2
1,23,25(39),27,29,31(38),33,35-octadecaene-37,38,39,40,41,42-hexol (1:1)
(9CI)

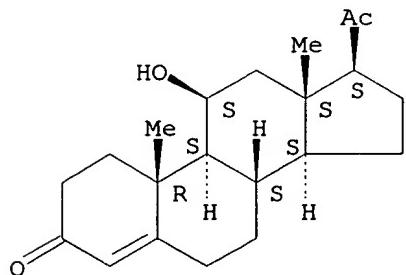
MF C66 H84 O6 . C21 H30 O3

CM 1

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

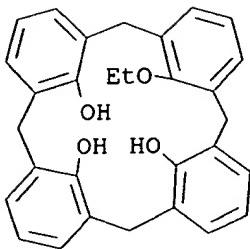
Absolute stereochemistry.



L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS

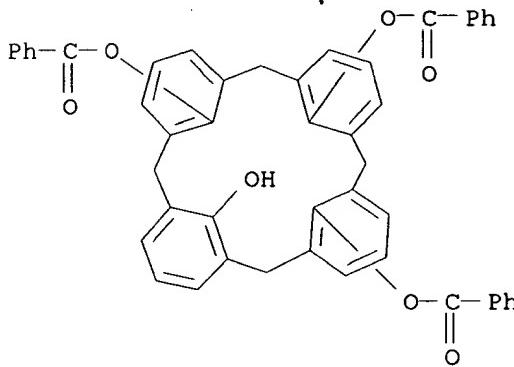
IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
5,17,19(26),21,23-dodecaene-25,26,27-triol, 28-ethoxy- (9CI)

MF C30 H28 O4



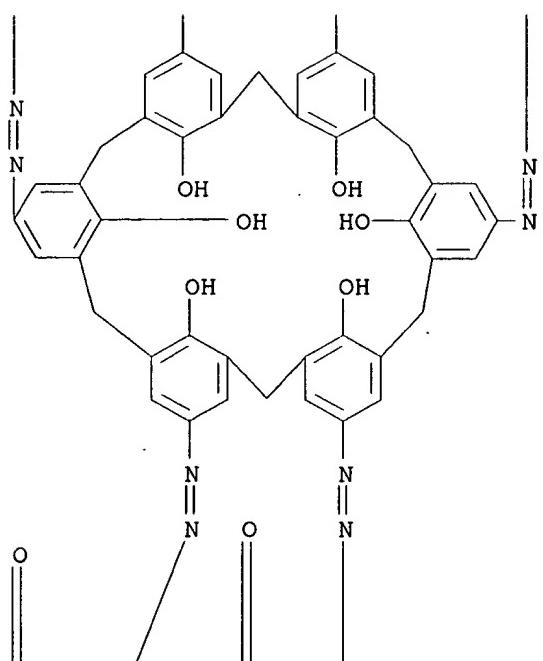
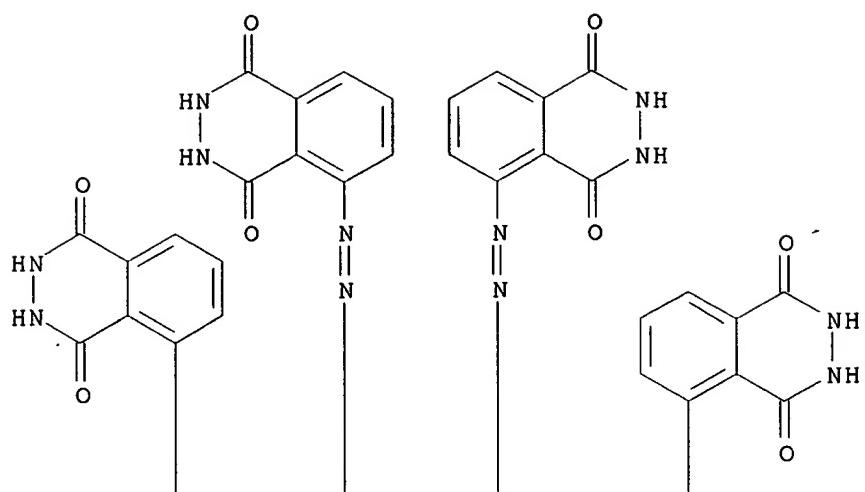
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

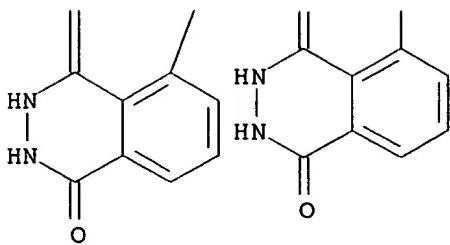
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
5,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, tribenzoate (9CI)
MF C49 H36 O7



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

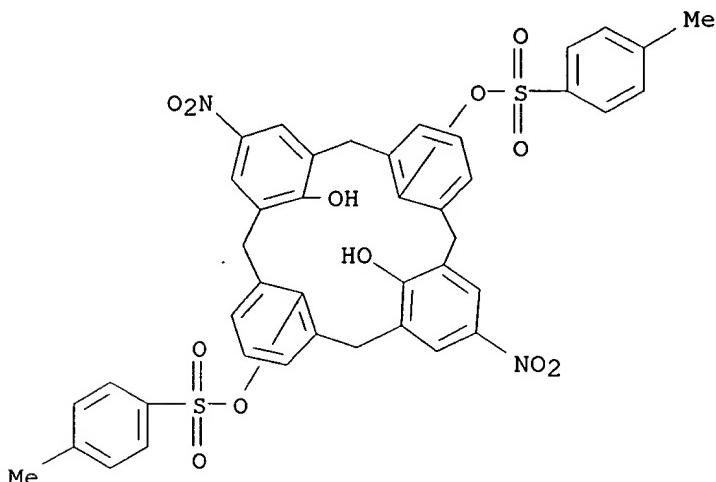
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
IN 1,4-Phthalazinedione, 5,5',5'',5''',5'''',5'''''-[(37,38,39,40,41,42-
hexahydroxyheptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-
1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-
octadecaene-5,11,17,23,29,35-hexayl)hexakis(azo)]hexakis[2,3-dihydro-
(9CI)
MF C90 H60 N24 O18





HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):50

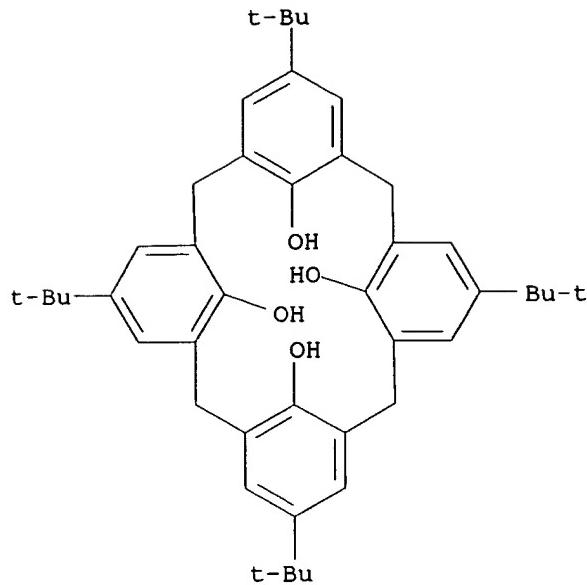
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,17-dinitro-,
 25,27-bis(4-methylbenzenesulfonate) (9CI)
 MF C42 H34 N2 O12 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

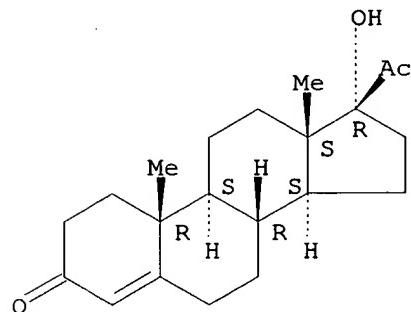
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pregn-4-ene-3,20-dione, 17-hydroxy-, compd. with 5,11,17,23-
 tetrakis(1,1-dimethylethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-
 tetrol (1:1) (9CI)
 MF C44 H56 O4 . C21 H30 O3

CM 1

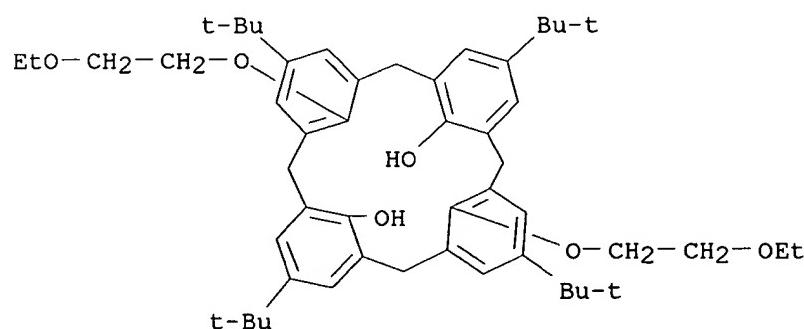


CM 2

Absolute stereochemistry.

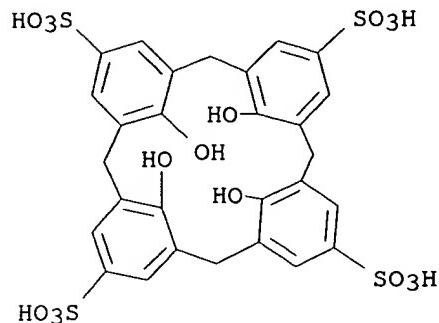


L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,27-diol, 5,11,17,23-tetrakis(1,1-
 dimethylethyl)-26,28-bis(2-ethoxyethoxy)- (9CI)
 MF C52 H72 O6



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

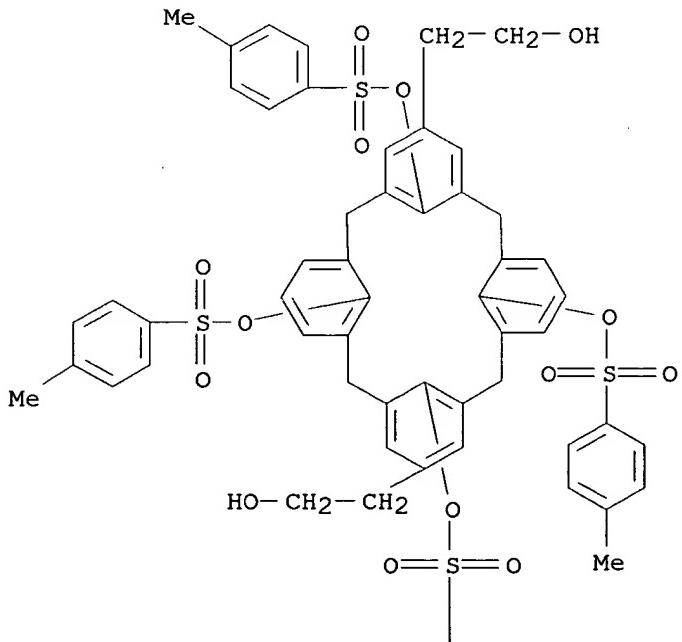
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-5,11,17,23-
 tetrasulfonic acid, 25,26,27,28-tetrahydroxy-, tetrasodium salt (9CI)
 MF C28 H42 O16 S4 . 4 Na
 CI COM

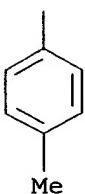


● 4 Na

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-
 tetrol, 5,17-bis(2-hydroxyethyl)-, 25,26,27,28-tetrakis(4-
 methylbenzenesulfonate) (9CI)
 MF C60 H56 O14 S4

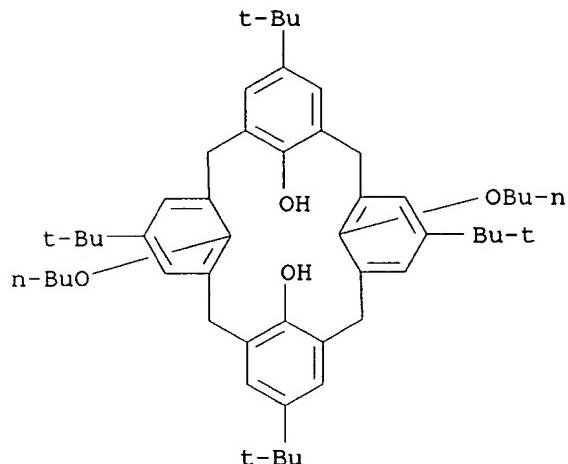
PAGE 1-A





PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,27-diol, 26,28-dibutoxy-5,11,17,23-
 tetrakis(1,1-dimethylethyl)- (9CI)
 MF C52 H72 O4
 CI COM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

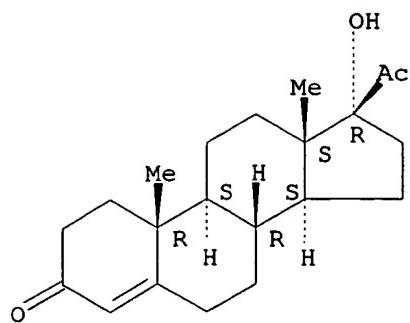
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pregn-4-ene-3,20-dione, 17-hydroxy-, compd. with 5,11,17,23,29,35-
 hexakis(1,1-dimethylethyl)heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,3
 1]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29
 ,31(38),33,35-octadecaene-37,38,39,40,41,42-hexol (1:1) (9CI)
 MF C66 H84 O6 . C21 H30 O3

CM 1

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

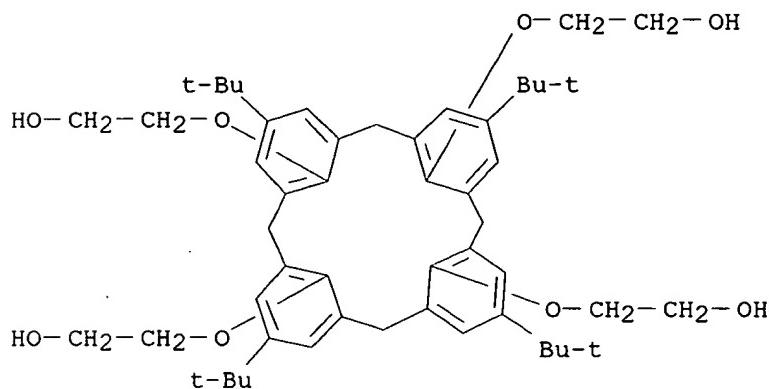
Absolute stereochemistry.



L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS

IN Ethanol, 2;2',2'',2'''-[[5,11,17,23-tetrakis(1,1-dimethylethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(oxy)]tetrakis- (9CI)

MF C52 H72 O8



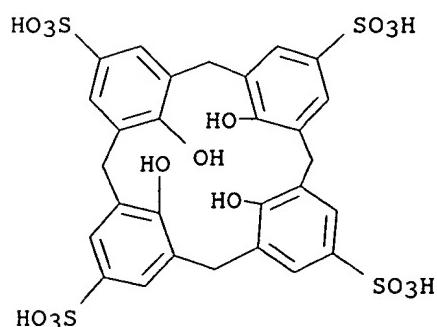
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS

IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-5,11,17,23-tetrasulfonic acid, 25,26,27,28-tetrahydroxy- (9CI)

MF C28 H42 O16 S4

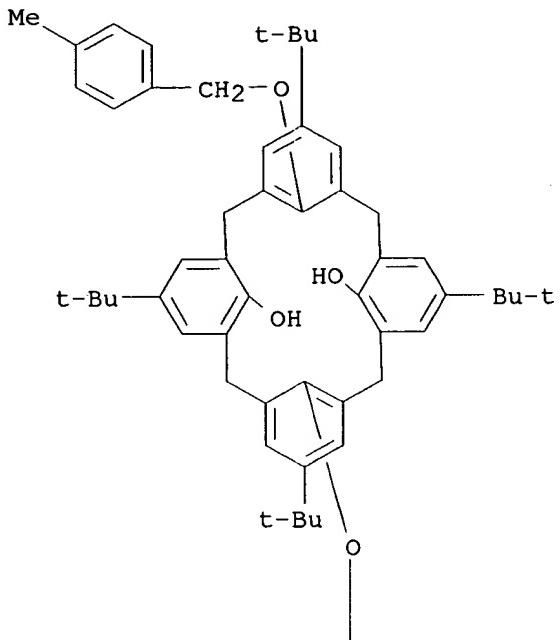
CI COM



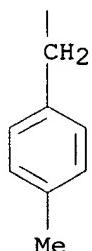
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
5,17,19(26),21,23-dodecaene-25,27-diol, 5,11,17,23-tetrakis(1,1-
dimethylethyl)-26,28-bis[(4-methylphenyl)methoxy]- (9CI)
MF C60 H72 O4

PAGE 1-A

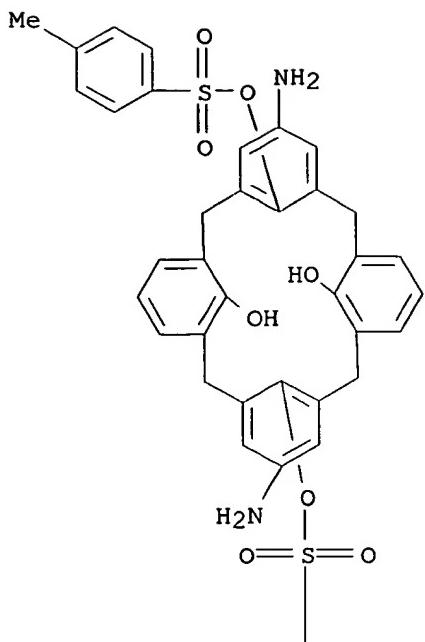


PAGE 2-A



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

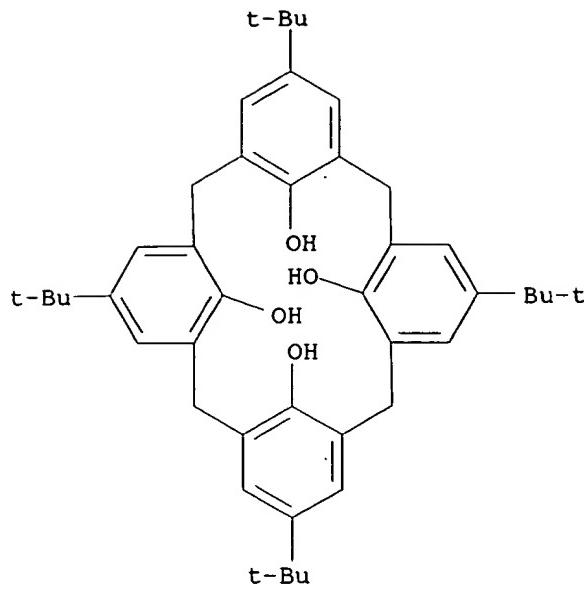
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
5,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,17-diamino-,
26,28-bis(4-methylbenzenesulfonate), dihydrochloride (9CI)
MF C42 H38 N2 O8 S2 . 2 Cl H



●2 HCl

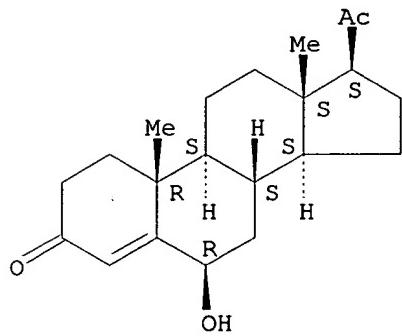
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pregn-4-ene-3,20-dione, 6-hydroxy-, (6. β .)-, compd. with
 5,11,17,23-tetrakis(1,1-dimethylethyl)pentacyclo[19.3.1.13,7.19,13.115,19]
 octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-
 25,26,27,28-tetrol (1:1) (9CI)
 MF C44 H56 O4 . C21 H30 O3

CM 1

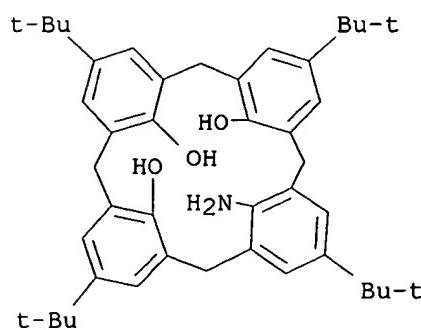


CM 2

Absolute stereochemistry.

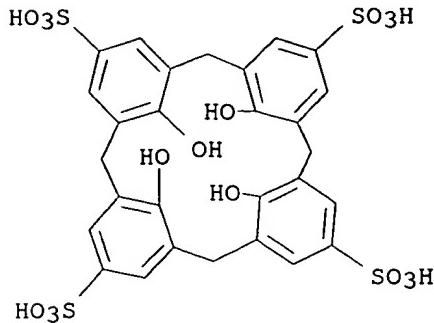


L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,26,27-triol, 28-amino-5,11,17,23-
 tetrakis(1,1-dimethylethyl)-, stereoisomer (9CI)
 MF C44 H57 N O3



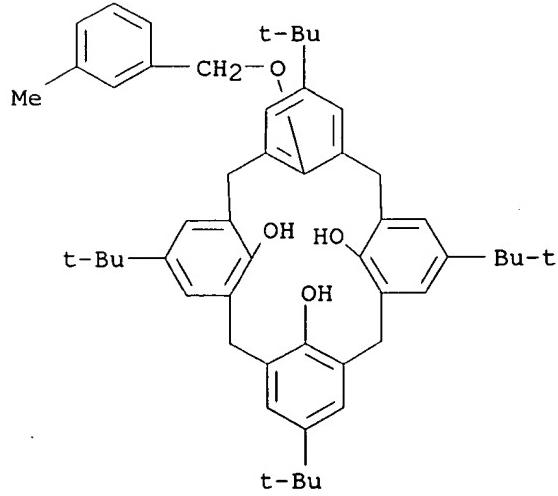
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-5,11,17,23-
 tetrasulfonic acid, 25,26,27,28-tetrahydroxy-, pentasodium salt (9CI)
 MF C28 H24 O16 S4 . 5 Na
 CI COM



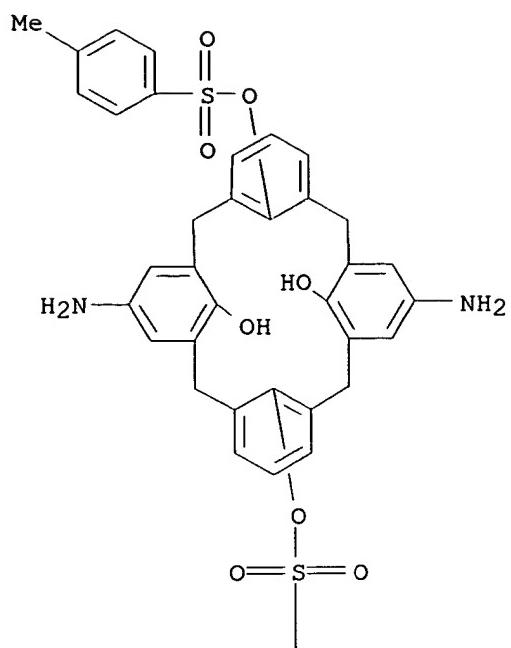
● 5 Na

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,26,27-triol, 5,11,17,23-tetrakis(1,1-
 dimethylethyl)-28-[(3-methylphenyl)methoxy]- (9CI)
 MF C52 H64 O4



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,17-diamino-,
 25,27-bis(4-methylbenzenesulfonate), dihydrochloride (9CI)
 MF C42 H38 N2 O8 S2 . 2 Cl H



●2 HCl

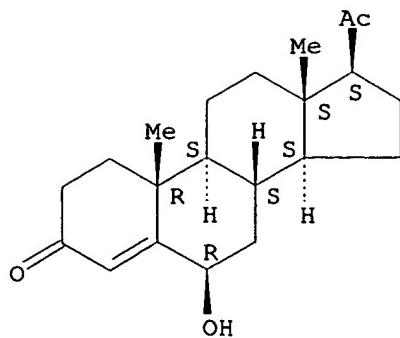
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pregn-4-ene-3,20-dione, 6-hydroxy-, (6.*beta.*)-, compd. with
 5,11,17,23,29,35-hexakis(1,1-dimethylethyl)heptacyclo[31.3.1.13,7.19,13.11
 5,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),2
 1,23,25(39),27,29,31(38),33,35-octadecaene-37,38,39,40,41,42-hexol (1:1)
 (9CI)
 MF C₆₆ H₈₄ O₆ . C₂₁ H₃₀ O₃

CM 1

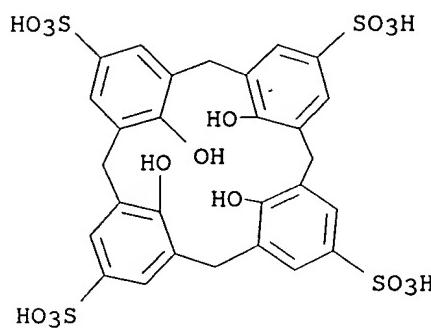
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

Absolute stereochemistry.

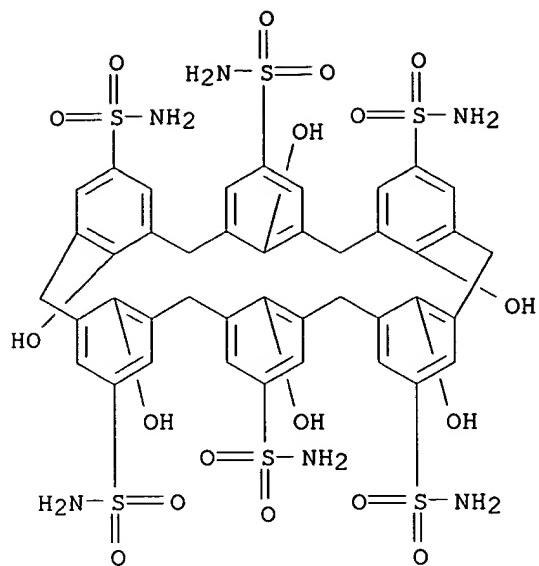


L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN **Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-**
1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-5,11,17,23-
tetrasulfonic acid, 25,26,27,28-tetrahydroxy-, monoammonium salt (9CI)
 MF C28 H24 O16 S4 . H3 N



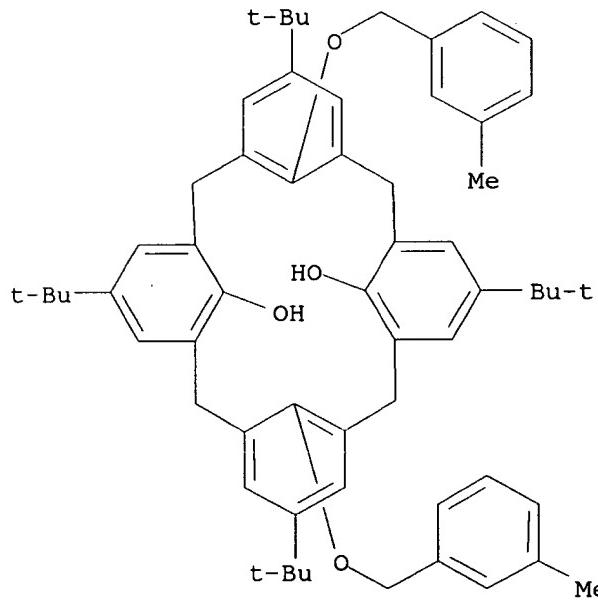
● NH₃

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN **Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-**
1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-
octadecaene-5,11,17,23,29,35-hexasulfonamide, 37,38,39,40,41,42-
hexahydroxy- (9CI)
 MF C42 H42 N6 O18 S6



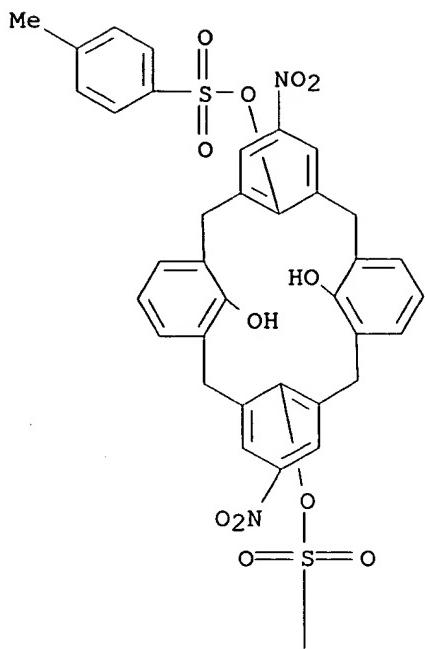
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,27-diol, 5,11,17,23-tetrakis(1,1-
 dimethylethyl)-26,28-bis[(3-methylphenyl)methoxy]-, stereoisomer (9CI)
 MF C60 H72 O4



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

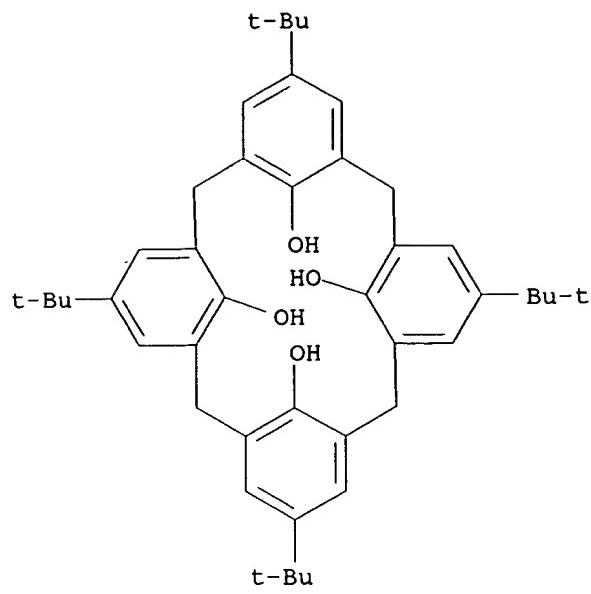
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,17-dinitro-,
 26,28-bis(4-methylbenzenesulfonate) (9CI)
 MF C42 H34 N2 O12 S2
 CI COM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

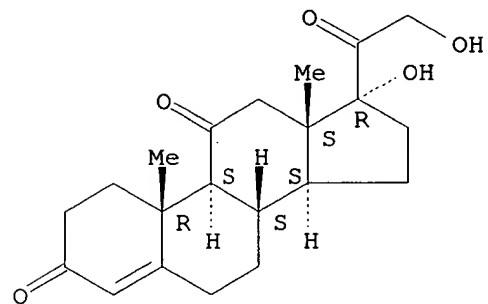
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN **Pregn-4-ene-3,11,20-trione, 17,21-dihydroxy-, compd. with
 5,11,17,23-tetrakis(1,1-dimethylethyl)pentacyclo[19.3.1.13,7.19,13.115,19]
 octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-
 25,26,27,28-tetrol (1:1) (9CI)**
 MF C44 H56 O4 . C21 H28 O5

CM 1

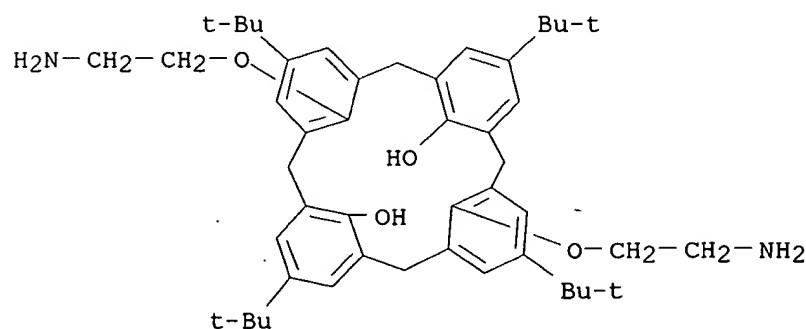


CM 2

Absolute stereochemistry.

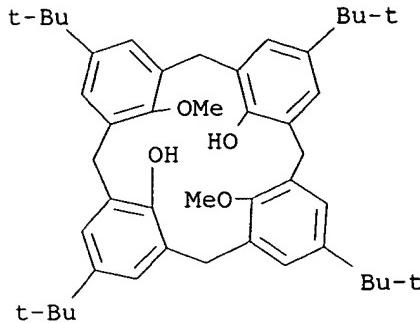


L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,27-diol, 26,28-bis(2-aminoethoxy)-
 5,11,17,23-tetrakis(1,1-dimethylethyl)- (9CI)
 MF C48 H66 N2 O4
 CI COM



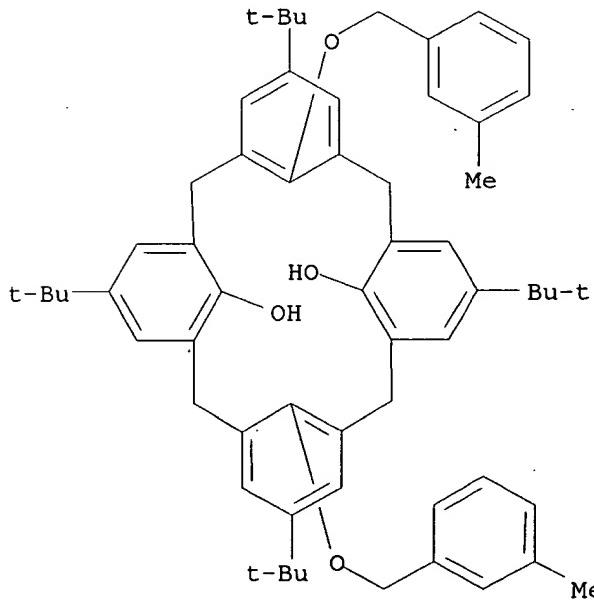
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,27-diol, 5,11,17,23-tetrakis(1,1-
 dimethylethyl)-26,28-dimethoxy- (9CI)
 MF C46 H60 O4
 CI COM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,27-diol, 5,11,17,23-tetrakis(1,1-
 dimethylethyl)-26,28-bis[(3-methylphenyl)methoxy]-, stereoisomer (9CI)
 MF C60 H72 O4



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

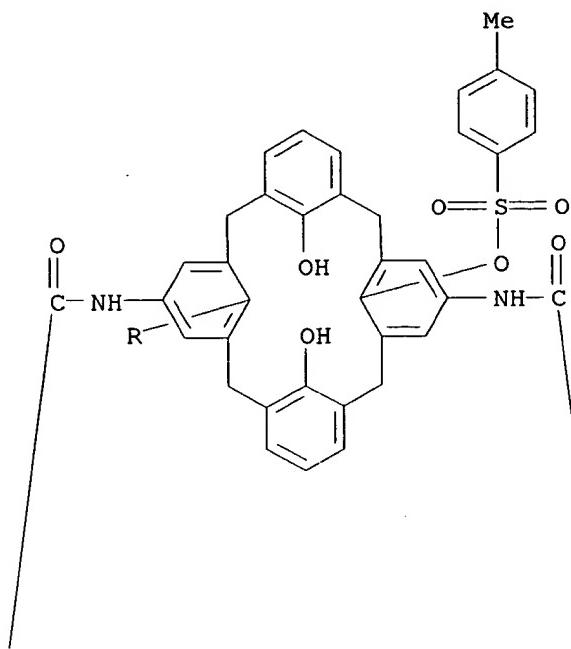
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Cobaltoceneum, [1,1''-[25,27-dihydroxy-26,28-bis[[4-
 methylphenyl)sulfonyl]oxy]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-

1(25), 3, 5, 7(28), 9, 11, 13(27), 15, 17, 19(26), 21, 23-dodecaene-5, 17-
diyl]bis(iminocarbonyl)]bis-, bis[hexafluorophosphate(1-)] (9CI)

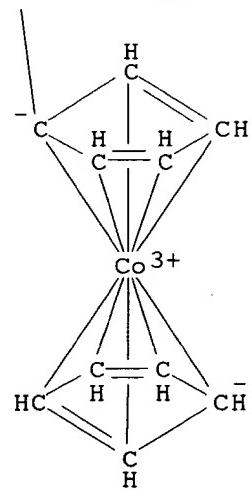
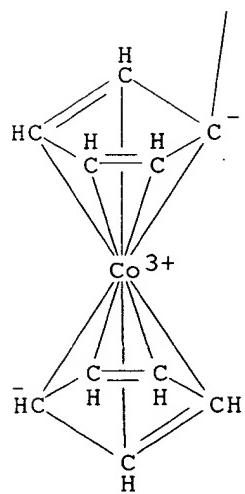
MF C64 H54 Co2 N2 O10 S2 . 2 F6 P

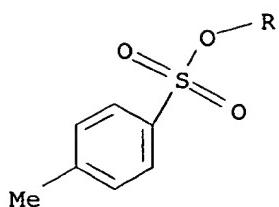
CM 1

PAGE 1-A

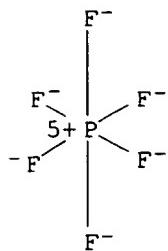


PAGE 2-A





CM 2



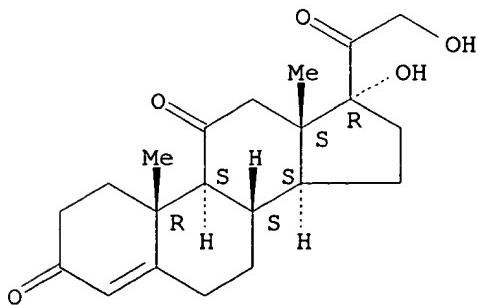
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN **Pregn-4-ene-3,11,20-trione, 17,21-dihydroxy-, compd. with
 5,11,17,23,29,35-hexakis(1,1-dimethylethyl)heptacyclo[31.3.1.13,7.19,13.11
 5,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),2
 1,23,25(39),27,29,31(38),33,35-octadecaene-37,38,39,40,41,42-hexol (1:1)
 (9CI)**
 MF C66 H84 O6 . C21 H28 O5

CM 1

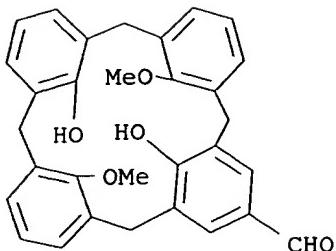
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

Absolute stereochemistry.

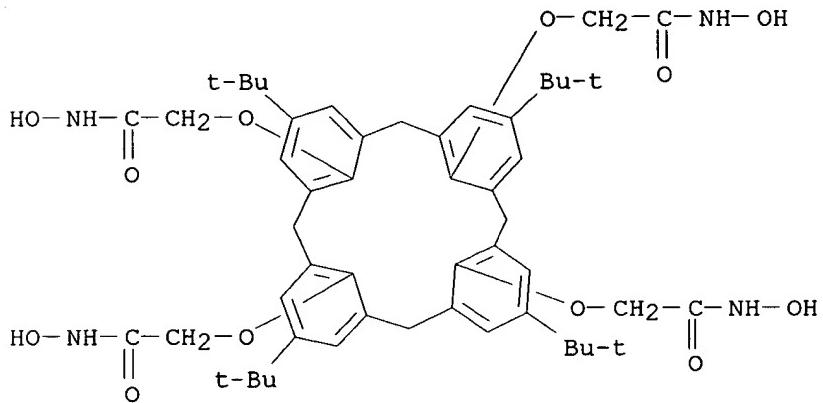


L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN **Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-5-carboxaldehyde,
 26,28-dihydroxy-25,27-dimethoxy- (9CI)**
 MF C31 H28 O5

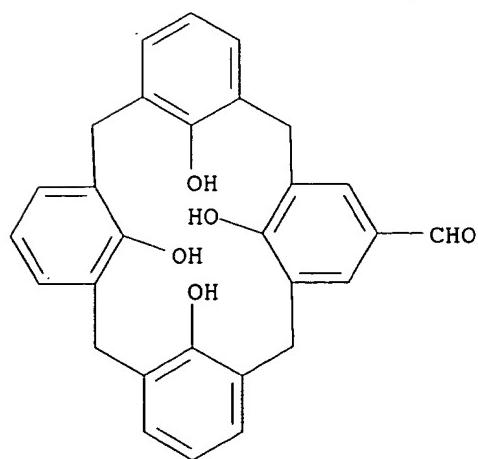


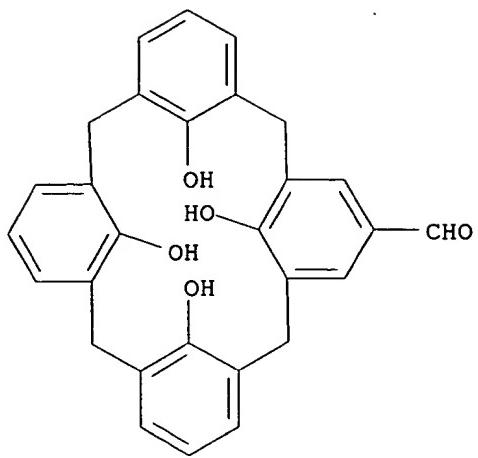
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Acetamide, 2,2',2'',2'''-[[5,11,17,23-tetrakis(1,1-dimethylethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(oxy)]tetrakis[N-hydroxy- (9CI)
 MF C52 H68 N4 O12



L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-5-carboxaldehyde, 25,26,27,28-tetrahydroxy- (9CI)
 MF C29 H44 O5



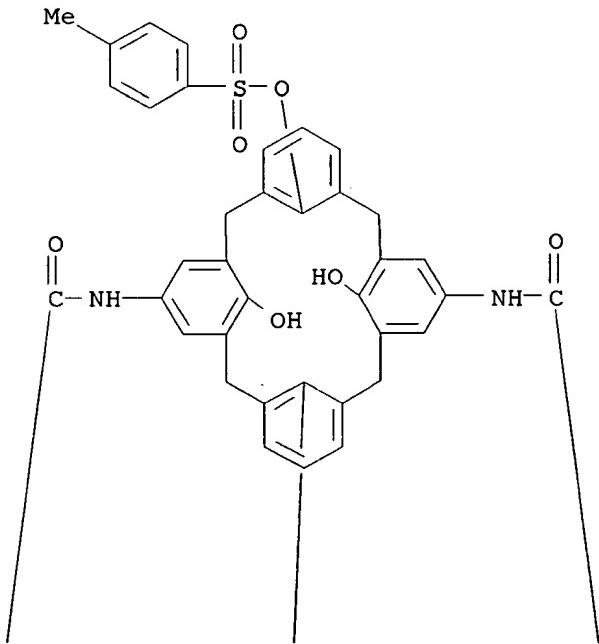


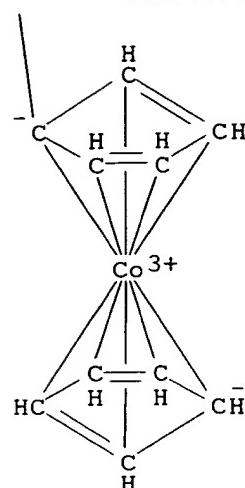
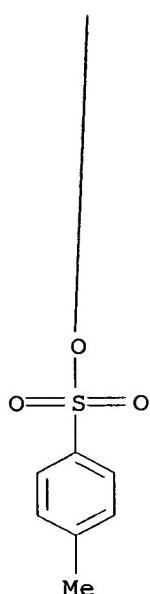
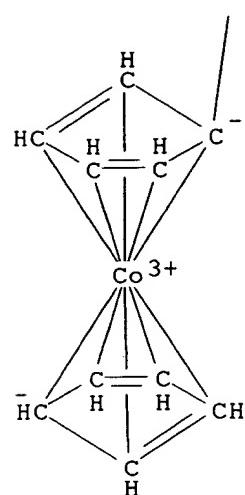
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
IN Cobaltoceneum, [1,1''-[26,28-dihydroxy-25,27-bis[[4-methylphenyl)sulfonyl]oxy]pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-5,17-diyl]bis(iminocarbonyl)]bis-, bis[hexafluorophosphate(1-)] (9CI)
MF C64 H54 Co2 O10 S2 . 2 F6 P

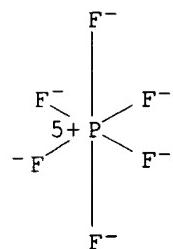
CM 1

PAGE 1-A



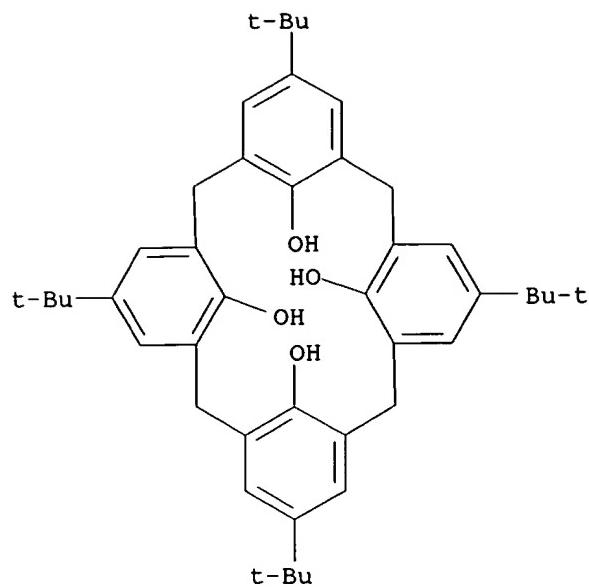


CM 2



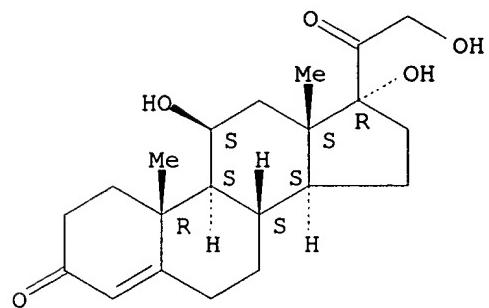
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN *Pregn-4-ene-3,20-dione, 11,17,21-trihydroxy-, (11.beta.)-, compd.*
with 5,11,17,23-tetrakis(1,1-dimethylethyl)pentacyclo[19.3.1.13,7.19,13.11
5,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-
25,26,27,28-tetrol (1:1) (9CI)
 MF C44 H56 O4 . C21 H30 O5

CM 1

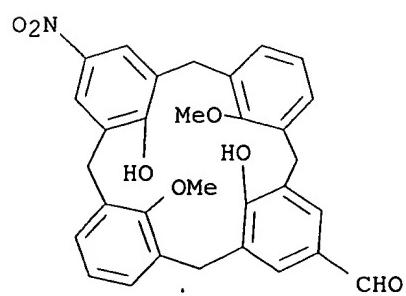


CM 2

Absolute stereochemistry.



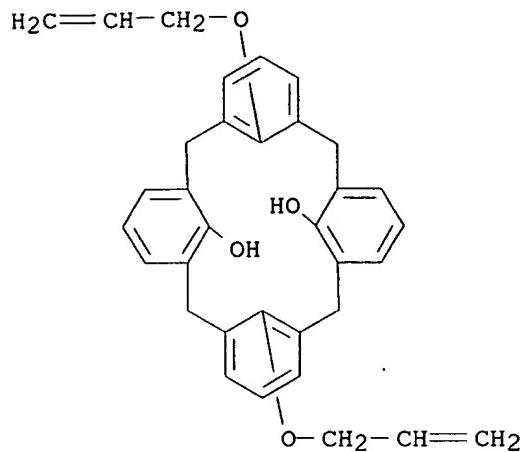
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-
 1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-5-carboxaldehyde,
 26,28-dihydroxy-25,27-dimethoxy-17-nitro- (9CI)
 MF C31 H27 N O7



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

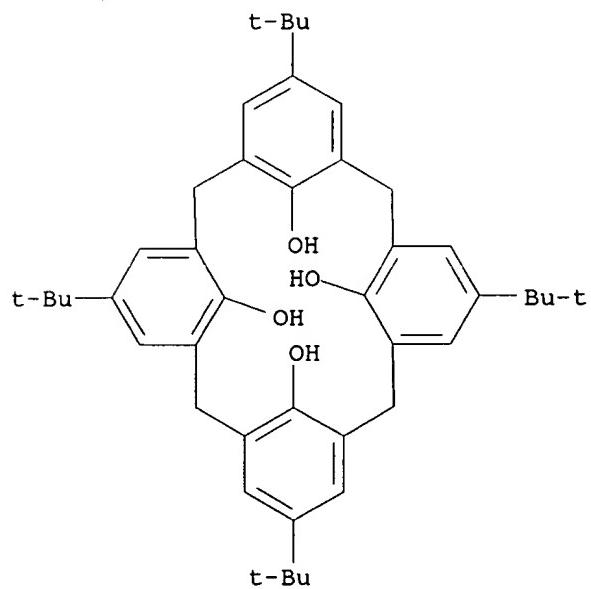
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS

IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
5,17,19(26),21,23-dodecaene-25,27-diol, 26,28-bis(2-propenyloxy)-,
stereoisomer (9CI)
MF C34 H32 O4



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
5,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 5,11,17,23-tetrakis(1,1-
dimethylethyl)- (9CI)
MF C44 H56 O4
CI COM



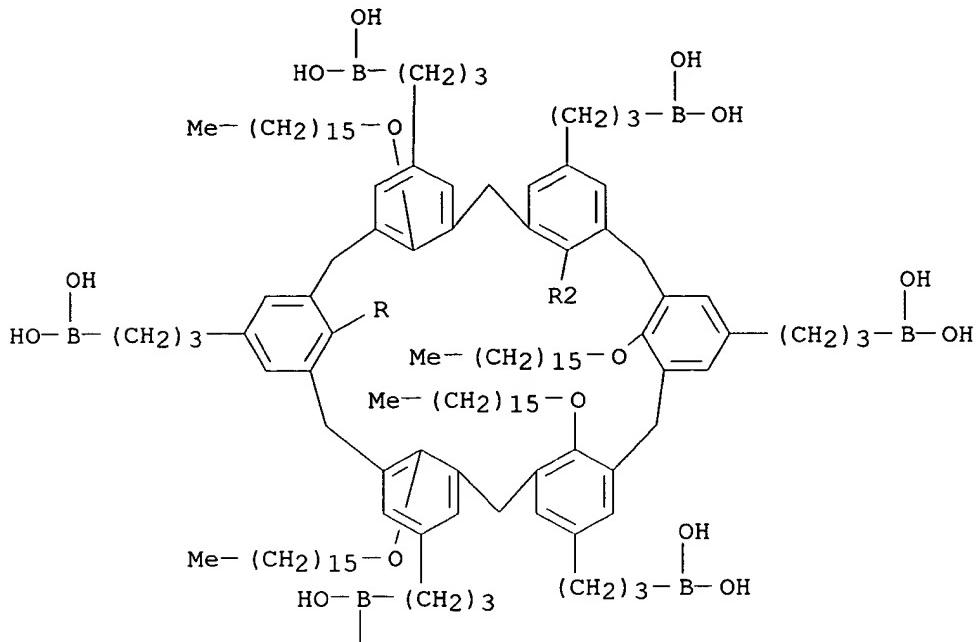
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS

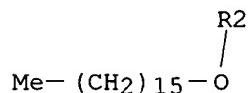
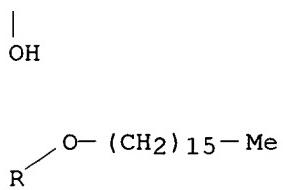
IN Boronic acid, [[37,38,39,40,41,42-hexakis(hexadecyloxy)heptacyclo[31.3.1.1.3,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene-5,11,17,23,29,35-hexyl]hexa-3,1-propanediyl]hexakis- (9CI)

MF C156 H270 B6 O18

PAGE 1-A



PAGE 2-A



L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS

IN Pregn-4-ene-3,20-dione, 11,17,21-trihydroxy-, (11. β .)-, compd. with 5,11,17,23,29,35-hexakis(1,1-dimethylethyl)heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-octadecaene-37,38,39,40,41,42-hexol (1:1) (9CI)

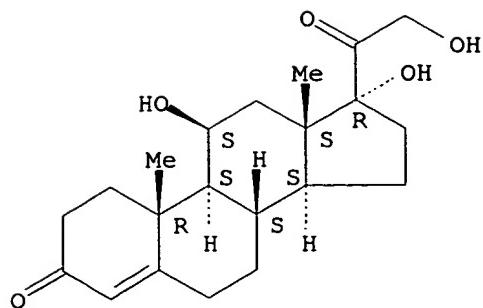
MF C66 H84 O6 . C21 H30 O5

CM 1

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

Absolute stereochemistry.



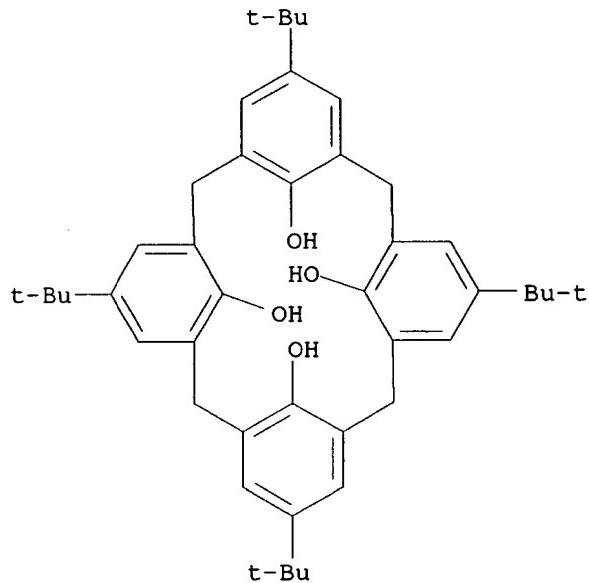
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS

IN Pregn-4-ene-3,20-dione, 11-hydroxy-, (11.alpha.)-, compd. with
5,11,17,23-tetrakis(1,1-dimethylethyl)pentacyclo[19.3.1.13,7.19,13.115,19]
octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-

25,26,27,28-tetrol (1:1) (9CI)

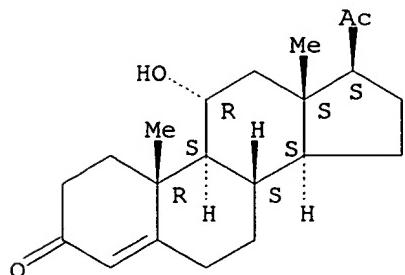
MF C44 H56 O4 . C21 H30 O3

CM 1



CM 2

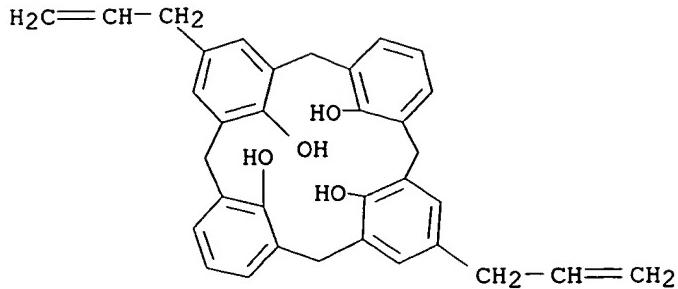
Absolute stereochemistry.



L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS

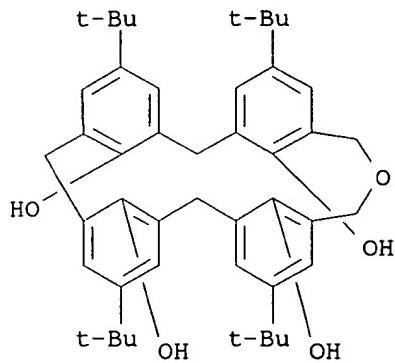
IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1

MF 5,17,19(26),21,23-dodecaene-25,26,27,28-tetrol, 11,23-di-2-propenyl- (9CI)
C34 H32 O4



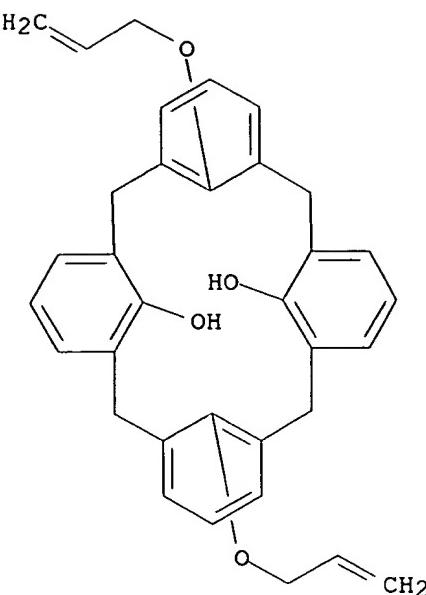
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
IN 21-Oxapentacyclo[21.3.1.13,7.19,13.115,19]triaconta-
1(27),3,5,7(30),9,11,13(29),15,17,19(28),23,25-dodecaene-27,28,29,30-
tetrol, 5,11,17,25-tetrakis(1,1-dimethylethyl)- (9CI)
MF C45 H58 O5
CI COM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
5,17,19(26),21,23-dodecaene-25,27-diol, 26,28-bis(2-propenyoxy)- (9CI)
MF C34 H32 O4



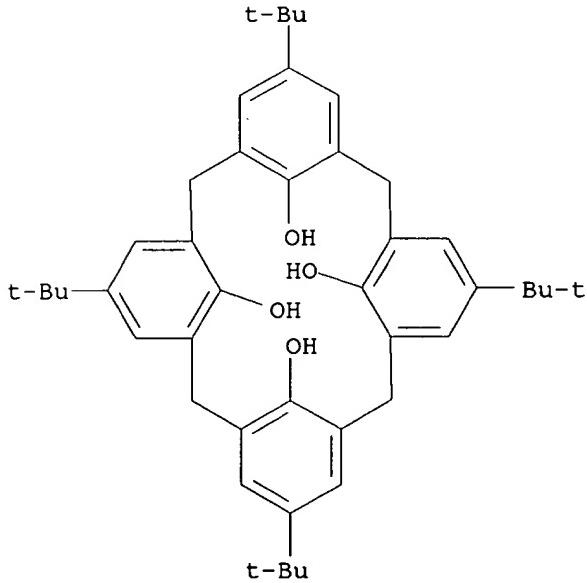
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS

IN Estr-4-en-3-one, 17-hydroxy-, (17. β .)-, compd. with
5,11,17,23-tetrakis(1,1-dimethylethyl)pentacyclo[19.3.1.13,7.19,13.115,19]
octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-
25,26,27,28-tetrol (1:1) (9CI)

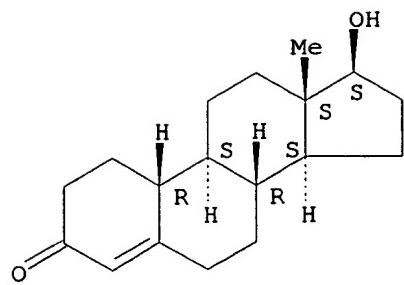
MF C44 H56 O4 . C18 H26 O2

CM 1



CM 2

Absolute stereochemistry.



L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS

IN Pregn-4-ene-3,20-dione, 11-hydroxy-, (11.alpha.)-, compd. with
5,11,17,23,29,35-hexakis(1,1-dimethylethyl)heptacyclo[31.3.1.13,7.19,13.11
5,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),2
1,23,25(39),27,29,31(38),33,35-octadecaene-37,38,39,40,41,42-hexol (1:1)
(9CI)

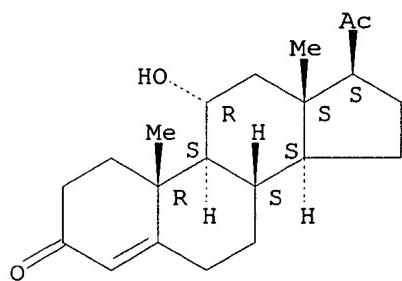
MF C66 H84 O6 . C21 H30 O3

CM 1

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

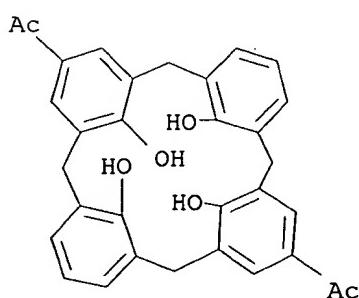
Absolute stereochemistry.



L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS

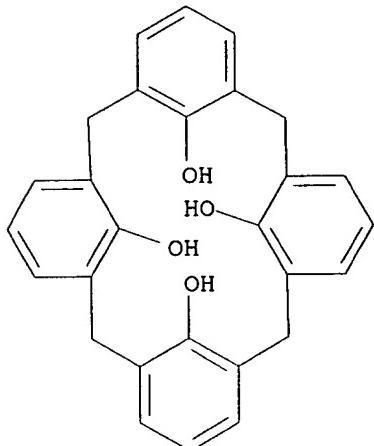
IN Ethanone, 1,1'-(25,26,27,28-tetrahydroxypentacyclo[19.3.1.13,7.19,13.
115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-
5,17-diyl)bis-, stereoisomer (9CI)

MF C32 H28 O6



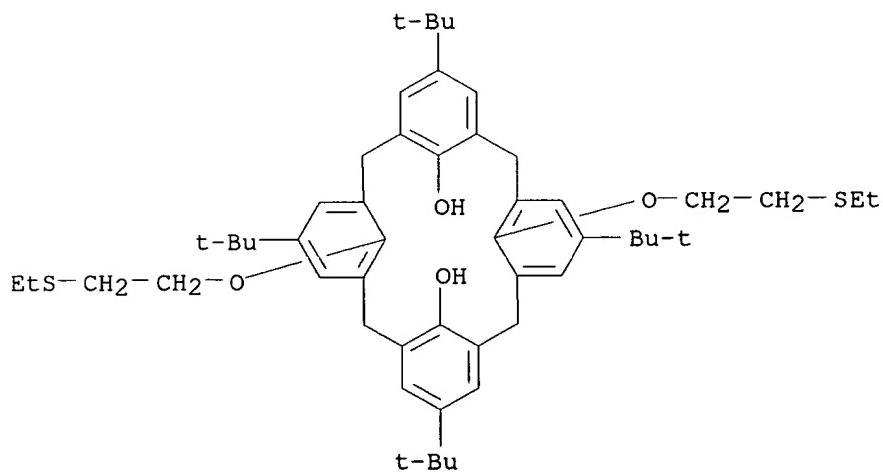
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,26,27,28-tetrol (9CI)
 MF C28 H42 O4
 CI COM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
 5,17,19(26),21,23-dodecaene-25,27-diol, 5,11,17,23-tetrakis(1,1-
 dimethylethyl)-26,28-bis[2-(ethylthio)ethoxy]- (9CI)
 MF C52 H72 O4 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
 IN Estr-4-en-3-one, 17-hydroxy-, (17. β .)-, compd. with
 5,11,17,23,29,35-hexakis(1,1-dimethylethyl)heptacyclo[31.3.1.13,7.19,13.11
 5,19.121,25.127,31]dotetraconta-1(37),3,5,7(42),9,11,13(41),15,17,19(40),2
 1,23,25(39),27,29,31(38),33,35-octadecaene-37,38,39,40,41,42-hexol (1:1)

(9CI)

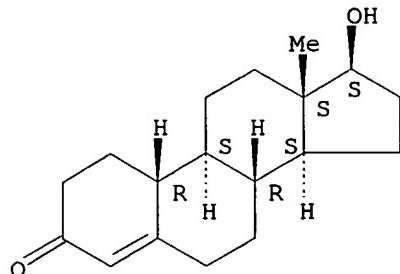
MF C66 H84 O6 . C18 H26 O2

CM 1

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 2

Absolute stereochemistry.



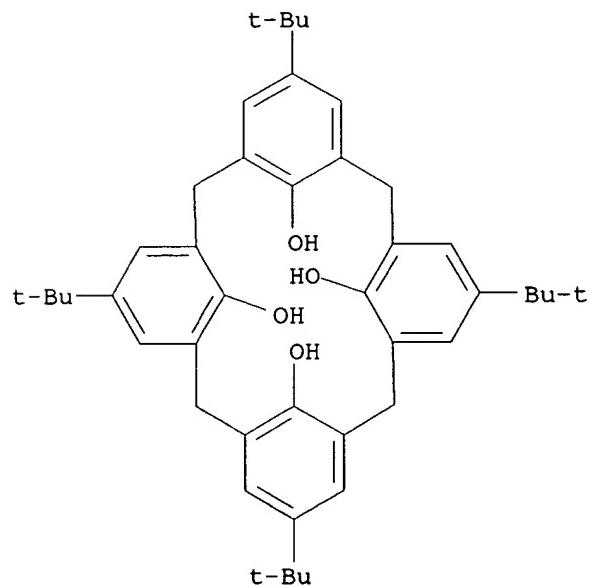
L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS

IN Pregn-4-ene-3,20-dione, 11-hydroxy-, (11. β .)-, compd. with
5,11,17,23-tetrakis(1,1-dimethylethyl)pentacyclo[19.3.1.13,7.19,13.115,19]
octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-

25,26,27,28-tetrol (1:1) (9CI)

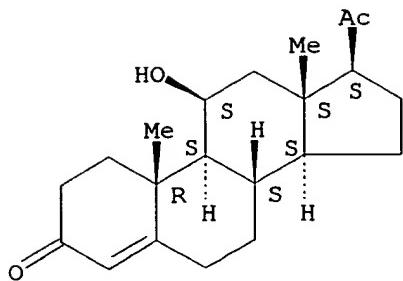
MF C44 H56 O4 . C21 H30 O3

CM 1

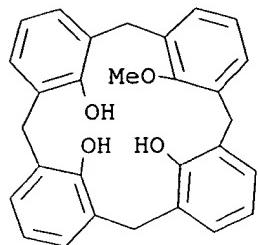


CM 2

Absolute stereochemistry.



L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
IN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),1
5,17,19(26),21,23-dodecaene-25,26,27-triol, 28-methoxy-, stereoisomer
(9CI)
MF C29 H26 O4



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L1 56 ANSWERS REGISTRY COPYRIGHT 2002 ACS
IN Heptacyclo[31.3.1.13,7.19,13.115,19.121,25.127,31]dotetraconta-
1(37),3,5,7(42),9,11,13(41),15,17,19(40),21,23,25(39),27,29,31(38),33,35-
octadecaene-37,38,39,40,41,42-hexol, 5,11,17,23,29,35-hexakis(1,1-
dimethylethyl)- (9CI)
MF C66 H84 O6
CI COM

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

=> d his

(FILE 'HOME' ENTERED AT 13:03:07 ON 23 JAN 2002)

FILE 'REGISTRY' ENTERED AT 13:03:14 ON 23 JAN 2002
L1 56 S CALIX AND HYDROXY NOT 8

=> s calix and ethanol
240 CALIX
181294 ETHANOL
L2 2 CALIX AND ETHANOL

=> d 1-2

L2 ANSWER 1 OF 2 REGISTRY COPYRIGHT 2002 ACS

RN 145307-27-3 REGISTRY

CN Ethanol, 2,2',2'',2'''-[[5,11,17,23-tetrakis(1,1-dimethylethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(oxy)]tetrakis-, tetrakis(4-methylbenzenesulfonate) (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosane, ethanol deriv.

OTHER NAMES:

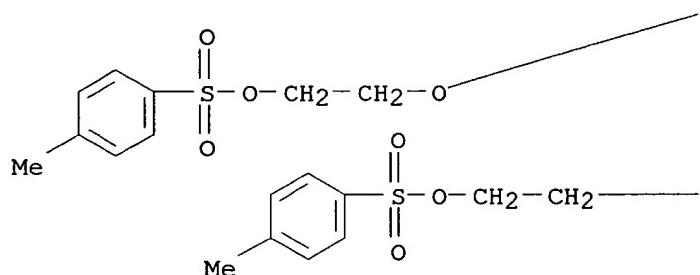
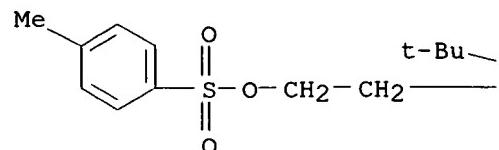
CN 5,11,17,23-Tetra-tert-butyl-25,26,27,28-tetrakis(2-(((4-tolyl)sulfonyl)oxy)ethoxy)calix[4]arene

MF C80 H96 O16 S4

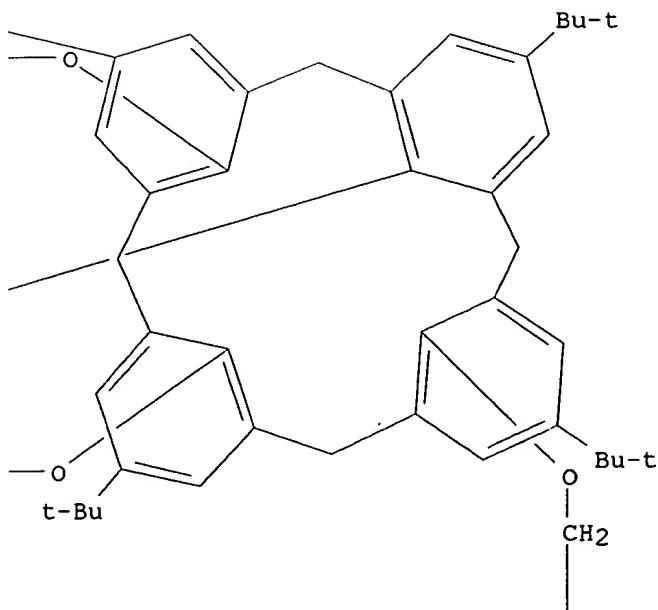
SR CA

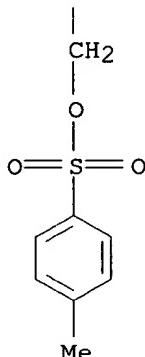
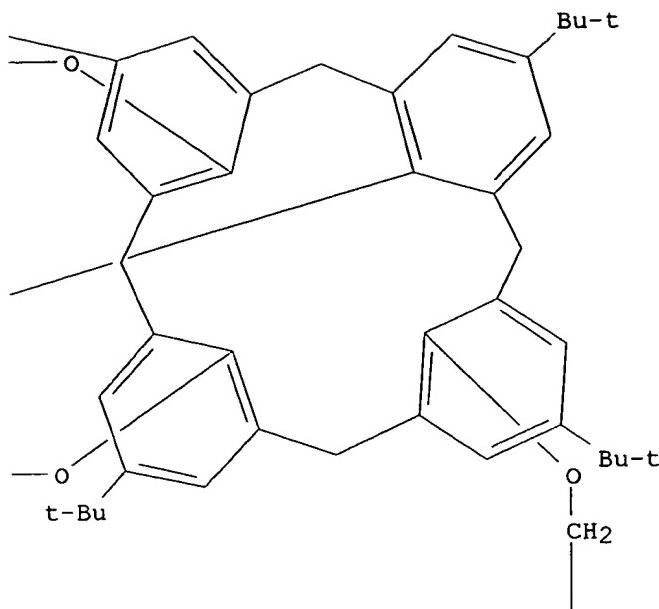
LC STN Files: CA, CAPLUS, CASREACT, TOXCENTER, USPATFULL

PAGE 1-A



PAGE 1-B





PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

9 REFERENCES IN FILE CA (1967 TO DATE)
 9 REFERENCES IN FILE CAPLUS (1967 TO DATE)

L2 ANSWER 2 OF 2 REGISTRY COPYRIGHT 2002 ACS
 RN 145307-26-2 REGISTRY

CN Ethanol, 2,2',2'',2'''-[[5,11,17,23-tetrakis(1,1-dimethylethyl)pentacyclo[19.3.1.13,7.19,13.115,19]octacosa-1(25),3,5,7(28),9,11,13(27),15,17,19(26),21,23-dodecaene-25,26,27,28-tetrayl]tetrakis(oxy)]tetrakis- (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Pentacyclo[19.3.1.13,7.19,13.115,19]octacosane, ethanol deriv.

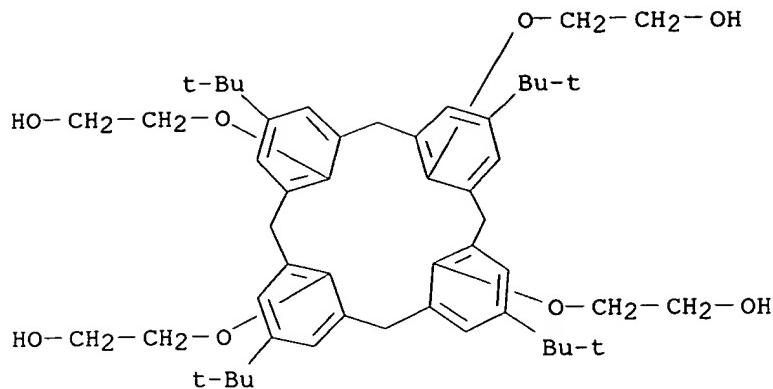
OTHER NAMES:

CN 5,11,17,23-tert-Butyl-25,26,27,28-(2-hydroxyethoxy)calix[4]arene
 CN 5,11,17,23-Tetra-tert-butyl-25,26,27,28-tetrakis(2-hydroxyethoxy)calix[4]arene

MF C52 H72 O8

SR CA

LC STN Files: CA, CAPLUS, CASREACT, TOXCENTER, USPATFULL



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

11 REFERENCES IN FILE CA (1967 TO DATE)
11 REFERENCES IN FILE CAPLUS (1967 TO DATE)

=> s calix and methanol

240 CALIX

227791 METHANOL

L3 0 CALIX AND METHANOL

=> s calix and propanol

240 CALIX

99698 PROPANOL

L4 0 CALIX AND PROPYANOL

=> s calix and anol

240 CALIX

370 ANOL

L5 0 CALIX AND ANOL

=> s calix and ol

240 CALIX

2125137 OL

L6 145 CALIX AND OL

=> file ca

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

FULL ESTIMATED COST

ENTRY

SESSION

57.08

57.23

FILE 'CA' ENTERED AT 13:06:54 ON 23 JAN 2002

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications.

FILE COVERS 1907 - 17 Jan 2002 VOL 136 ISS 4

FILE LAST UPDATED: 17 Jan 2002 (20020117/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

This file supports REG1stRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

The CA file now provides online access to patents and literature covered in CA from 1907 to the present. Bibliographic information and abstracts were added in 2001 for over 3.8 million records from 1907-1966.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

The CA Lexicon is now available in the Controlled Term (/CT) field. Enter HELP LEXICON for full details.

Attention, the CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

=> s 12

L7 14 L2

=> d all 1-14

L7 ANSWER 1 OF 14 CA COPYRIGHT 2002 ACS

AN 133:135373 CA

TI Calix[4]arenes with narrow rim 2-mercptoethoxy substituents as potential precursor molecules for metallacages and sensors

AU Knoblauch, Stephan; Falana, O. Matthew; Nam, Jaewook; Roundhill, D. Max; Hennig, Horst; Zeckert, Kornelia

CS Department of Chemistry and Biochemistry, Texas Tech University, Lubbock, TX, 79409-1061, USA

SO Inorg. Chim. Acta (2000), 300-302, 328-332

CODEN: ICHAA3; ISSN: 0020-1693

PB Elsevier Science S.A.

DT Journal

LA English

CC 29-9 (Organometallic and Organometalloidal Compounds)

OS CASREACT 133:135373

AB The compd. 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetrakis(2-mercptoethoxy)calix[4]arene, prep'd. by an improved method, reacts with methylmercuric acetate to give 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetrakis(2-(methylmercuriothio)ethoxy)calix[4]arene. Under vacuum this compd. converts to bis(2-(5,11,17,23-tetra-tert-butyl-25,26,27-tris(2-(methylmercuriothio)ethoxy)calix[4]arene-28-oxy)ethanethiolato)mercury by loss of dimethylmercury. Addnl. loss of dimethylmercury gave a product that is intermediate between bis(5,11,17,23-tetra-tert-butyl-25,26-bis(2-(methylmercuriothio)ethoxy)calix[4]arene-27,28-bis(2-oxyethanethiolato))dimercury, bis(5,11,17,23-tetra-tert-butyl-25-(2-(methylmercuriothio)ethoxy)calix[4]arene-26,27,28-tris(2-oxyethanethiolato))trimercury, and the cluster bis(5,11,17,23-tetra-tert-butylcalix[4]arene-25,26,27,28-tetrakis(2-oxyethanethiolato))tetramercury (11). 5,11,17,23-Tetra-tert-butyl-25,26,27,28-tetrakis(2-mercptoethoxy)calix[4]arene reacts with 9-chloromethylanthracene to give 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetrakis(2-(9-anthracylmethylthio)ethoxy)calix[4]arene.

ST calixarene mercuriothioethoxy anthracylmethylthioethoxy deriv prepn; fluorescence anthracylmethylthioethoxycalixarene; mercury thiolate metallacage calixarene deriv prepn

IT Fluorescence

(by tetrakis(anthracylmethylthioethoxy)calix[4]arene)

IT Metacyclophanes

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of mercuriothioethoxy- and anthracylmethylthioethoxy-narrow-rim-

substituted calix[4]arenes
IT Cage compounds
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of mercury metallacage by vacuum treatment of
tetrakis(mercurioethoxy)calix[4]arene)
IT 60705-62-6, 5,11,17,23-Tetra-tert-butyl-25,26,27,28-
tetrahydroxycalix[4]arene
RL: RCT (Reactant)
(condensation with Et bromoacetate)
IT 105-36-2, Ethyl bromoacetate
RL: RCT (Reactant)
(condensation with calixarene tetrol)
IT 24463-19-2, 9-(Chloromethyl)anthracene
RL: RCT (Reactant)
(condensation with mercaptoethoxy-substituted calixarene)
IT 108-07-6, Methylmercury acetate
RL: RCT (Reactant)
(coordinative condensation with mercaptoethoxy-substituted calixarene)
IT 286413-80-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(formation and elimination of dimethylmercury in vacuum)
IT 177191-42-3P, 25,26,27,28-Tetrakis(2-(acetylthio)ethoxy)-5,11,17,23-tetra-
tert-butylcalix[4]arene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and acid hydrolysis to thiol)
IT 286413-79-4P, 5,11,17,23-Tetra-tert-butyl-25,26,27,28-tetrakis(2-
(methylmercurioethoxy)ethoxy)calix[4]arene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and elimination of dimethylmercury in vacuum)
IT 286413-78-3P, 25,26,27,28-Tetrakis(2-((9-anthracyl)methyl)thio)ethoxy)-
5,11,17,23-tetra-tert-butylcalix[4]arene
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and fluorescence of)
IT 145307-27-3P, 5,11,17,23-Tetra-tert-butyl-25,26,27,28-tetrakis(2-
(((4-tolyl)sulfonyl)oxy)ethoxy)calix[4]arene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and metathesis with potassium thioacetate)
IT 97600-39-0P, 5,11,17,23-Tetra-tert-butyl-25,26,27,28-tetrakis(2-ethoxy-2-
oxoethoxy)calix[4]arene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and redn. to alc.)
IT 145307-26-2P, 5,11,17,23-Tetra-tert-butyl-25,26,27,28-tetrakis(2-
hydroxyethoxy)calix[4]arene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and tosylation of)
IT 286413-81-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
IT 169561-47-1P, 5,11,17,23-Tetra-tert-butyl-25,26,27,28-tetrakis(2-
mercaptopethoxy)calix[4]arene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn., methylmercurcation and condensation with
(chloromethyl)anthracene)
IT 98-59-9, Tosyl chloride
RL: RCT (Reactant)
(tosylation of hydroxyethoxy-substituted calixarene by)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bouas-Laurent, H; J Am Chem Soc 1986, V108, P315 CA
- (2) Craig, P; Organometallic Compounds in the Environment 1986, P65
- (3) Czarnik, A; Acc Chem Res 1994, V27, P302 CA
- (4) Dance, I; Polyhedron 1986, V5, P1037 CA
- (5) Delaigue, X; J Chem Soc, Chem Commun 1994, P1579 CA
- (6) Gutsche, C; Calixarenes Revisited, Monographs in Supramolecular Chemistry 1998
- (7) Gutsche, C; Tetrahedron 1983, V39, P409 CA
- (8) Krauter, G; Chem Mater 1996, V8, P360

- (9) Nishio, T; J Chem Soc, Perkin Trans I 1993, P1113 CA
 (10) Roundhill, D; Optoelectronic Properties of Inorganic Compounds 1999, P317 CA
 (11) Roundhill, D; Prog Inorg Chem 1995, V43, P533 CA
 (12) Song, L; Acta Chim Sin 1992, V50, P193 CA
 (13) Song, L; Organometallics 1996, V15, P1954 CA
 (14) van Veggel, F; Chem Rev 1994, V94, P281
 (15) Yordanov, A; Inorg Chem 1998, V37, P3526 CA

L7 ANSWER 2 OF 14 CA COPYRIGHT 2002 ACS

AN 133:17635 CA

TI Preparation of ((phosphinylacetyl)amino)alkoxy-substituted calixarenes and their use in extracting actinides and lanthanides

IN Dozol, Jean-francois; Garcia Carrera, Alejandro; Bohmer, Volker; Matthews, Susan E.

PA Commissariat a l'Energie Atomique, Fr.

SO PCT Int. Appl., 44 pp.

CODEN: PIXXD2

DT Patent

LA French

IC ICM C07F009-53

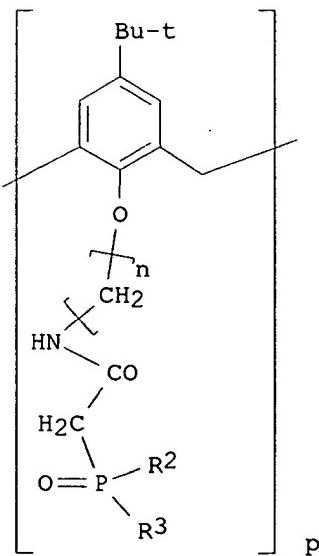
ICS G21C019-46; C22B003-00

CC 29-7 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 22, 68, 71

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|---|------|----------|-----------------|----------|
| PI | WO 2000031087 | A1 | 20000602 | WO 1999-FR2893 | 19991124 |
| | W: JP, US | | | | |
| | RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, | | | | |
| | PT, SE | | | | |
| | FR 2786487 | A1 | 20000602 | FR 1998-14902 | 19981126 |
| | FR 2786487 | B1 | 20010105 | | |
| | EP 1133501 | A1 | 20010919 | EP 1999-956134 | 19991124 |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, | | | | |
| | IE, FI | | | | |
| PRAI | FR 1998-14902 | A | 19981126 | | |
| | WO 1999-FR2893 | W | 19991124 | | |
| OS | CASREACT 133:17635; MARPAT 133:17635 | | | | |
| GI | | | | | |



AB ((Phosphinylacetyl)amino)alkoxy-substituted calixarenes (I; R1 = alkyl,

aryl, H; R2 and R3, identical or different, = alkyl or aryl; n = 2-8; p = 4-8) and method of prepn. are claimed. The prepn. involves condensation of (aminoalkoxy)calixarenes with R2R3P(O)CH2CO2R4 (R4 = p-nitrophenyl, 2,4-dinitrophenyl). The (aminoalkoxy)calixarenes were prepd. from hydroxycalixarenes and N-(bromoalkyl)phthalimides followed by reaction with hydrazine; alternatively, for n = 2, hydroxycalixarenes were reacted with alkyl bromoacetates to give esters that were reduced to alcs., which were converted to tosylates, which were reacted with sodium azide followed by catalytic hydrogenation. Data are given for the use of said calixarenes for extg. actinides and lanthanides from aq. solns. into hexyl o-nitrophenyl ether. The distribution coeffs. for the claimed calixarenes are much greater than those for the comparison extractant, Ph2P(O)CH2C(O)NiBu2. These extractants may be useful for processing aq. effluents coming from used nuclear fuel retreatment installations.

- ST phosphinylacetamidoalkoxy calixarene prepn extn actinide lanthanide; spent nuclear fuel processing lanthanide actinide extn phosphinylacetamidoalkoxy calixarene
- IT Actinides
Rare earth metals, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(extn. by ((phosphinylacetyl)amino)alkoxy-substituted calixarenes)
- IT Partition
(of actinides and lanthanides between aq. soln. and hexyl o-nitrophenyl ether by ((phosphinylacetyl)amino)alkoxy-substituted calixarenes)
- IT Extraction
(of actinides and lanthanides by ((phosphinylacetyl)amino)alkoxy-substituted calixarenes)
- IT Extractants
(prepn. of ((phosphinylacetyl)amino)alkoxy-substituted calixarenes and use in extg. actinides and lanthanides)
- IT Metacyclophanes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process);
USES (Uses)
(prepn. of ((phosphinylacetyl)amino)alkoxy-substituted calixarenes and use in extg. actinides and lanthanides)
- IT Nuclear fuel reprocessing
(prepn. of ((phosphinylacetyl)amino)alkoxy-substituted calixarenes as extractants for actinides and lanthanides for potential use in treating aq. effluents from)
- IT 97937-88-7, N,N-Diisobutyl(diphenylphosphinyl)acetamide
RL: NUU (Other use, unclassified); USES (Uses)
(comparison to alkoxy-substituted calixarenes as extractants for actinides and lanthanides)
- IT 105-36-2, Ethyl bromoacetate
RL: RCT (Reactant)
(condensation with hydroxy-substituted calixarene in presence of base)
- IT 98-59-9, Tosyl chloride
RL: RCT (Reactant)
(condensation with hydroxyethoxy-substituted calixarene)
- IT 178818-92-3, 4-Nitrophenyl (diphenylphosphinyl)acetate
RL: RCT (Reactant)
(condensations with aminoalkoxy-substituted calixarenes)
- IT 7439-91-0, Lanthanum, properties 7440-00-8, Neodymium, properties
7440-19-9, Samarium, properties 7440-35-9, Americium, properties
7440-45-1, Cerium, properties 7440-51-9, Curium, properties 7440-53-1,
Europium, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties);
PROC (Process)
(extn. from aq. solns. to hexyl o-nitrophenyl ether by
(phosphinylacetyl)amino)alkoxy-substituted calixarenes)
- IT 5394-18-3, N-(4-Bromobutyl)phthalimide 5460-29-7, N-(3-Bromopropyl)phthalimide
RL: RCT (Reactant)
(metathesis with sodium salts of hydroxycalixarenes)
- IT 161345-29-5P 166804-12-2P 226998-70-5P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and condensation with phosphinylacetic acid ester)

IT 145307-26-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and condensation with tosyl chloride)

IT 226998-99-8P 226999-10-6P 226999-22-0P
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process);
USES (Uses)
(prepn. and extn. of actinides and lanthanides by)

IT 145307-27-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and metathesis with sodium azide followed by hydrogenation to amine)

IT 226998-58-9P 226998-61-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and reaction with hydrazine to give aminoalkoxy-substituted calixarenes)

IT 271579-14-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and redn. to alc.)

IT 60705-62-6
RL: RCT (Reactant)
(reactions with Et bromoacetate and N-bromoalkylphthalimide in presence of base)

RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Barboso, S; JOURNAL OF THE CHEMICAL SOCIETY, PERKIN TRANSACTIONS 2 1999, 4, P719 CA.
- (2) Commissariat A L'Energie Atomique; WO 9623800 A 1996 CA

L7 ANSWER 3 OF 14 CA COPYRIGHT 2002 ACS
AN 132:347257 CA
TI Rigidification of the cone conformation of p-tert-butylcalix[4]arene with carbamate groups on the lower rim
AU McKervey, M. Anthony; Millership, Jeffrey S.; Russell, Julie A.; Nieuwenhuyzen, Mark; Pitarch, Miguel
CS School of Chemistry, The Queen's University of Belfast, Belfast, BT9 5AG, UK
SO Supramol. Chem. (1998), 9(2), 115-119
CODEN: SCHEER; ISSN: 1061-0278
PB Gordon & Breach Science Publishers
DT Journal
LA English
CC 22-3 (Physical Organic Chemistry)
AB The conformation of a p-tert-butylcalix[4]arene with four (R)-PhCHMeNHCO₂CH₂CH₂O residues on the lower rim has been investigated by X-ray diffraction and ¹H NMR anal. The mol. adopts a pinched cone conformation in the solid state with intramol. hydrogen bonding between the carbonyl groups and the nitrogen atoms of proximal carbamate podands. The NMR evidence indicates that this conformation persists in soln. at room temp. At temps. >80.degree.C the NMR spectrum is that of a time-averaged C₄v sym. cone conformation.
ST conformation calixarene carbamate podand crystallog NMR
IT Hydrogen bond
(intramol.; rigidification of the cone conformation of p-tert-butylcalix[4]arene with carbamate groups on the lower rim)
IT Conformation
Conformational barrier
Conformational transition
Crystal structure
Hydrogen bond
NMR (nuclear magnetic resonance)
Supramolecular structure
(rigidification of the cone conformation of p-tert-butylcalix[4]arene with carbamate groups on the lower rim)
IT Podands

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(rigidification of the cone conformation of p-tert-butylcalix[4]arene
with carbamate groups on the lower rim)

IT 33375-06-3

RL: RCT (Reactant)
(carbamoylation; rigidification of the cone conformation of
p-tert-butylcalix[4]arene with carbamate groups on the lower rim)

IT 145307-26-2P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(carbamoylation; rigidification of the cone conformation of
p-tert-butylcalix[4]arene with carbamate groups on the lower rim)

IT 269744-98-1P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation)
(crystallog.; rigidification of the cone conformation of
p-tert-butylcalix[4]arene with carbamate groups on the lower rim)

RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Arduini, A; J Org Chem 1995, V69, P1454
- (2) Arimura, T; Bull Chem Soc Jpn 1988, V61, P3733 CA
- (3) Bohmer, V; Angew Chem In Ed Engl 1995, V34, P713
- (4) Conner, M; J Am Chem Soc 1991, V113, P9670 CA
- (5) Fischer, S; J Am Chem Soc 1995, V117, P1611 CA
- (6) Grootenhuis, P; J Am Chem Soc 1990, V112, P4165 CA
- (7) Gutsche, C; J Am Chem Soc 1985, V107, P6052 CA
- (8) Gutsche, C; Monographs in Supramolecular Chemistry 1989
- (9) Gutsche, C; Pure Appl Chem 1988, V60, P483 CA
- (10) Kelderman, E; Angew Chem Int Ed Engl 1992, V31, P1075
- (11) Malone, J; J Chem Soc Chem Commun 1995, P2151 CA
- (12) Scheerder, J; J Org Chem 1996, V61, P3476 CA
- (13) Scwing-Weill, M; Calixarenes, a Versatile Class of Macroyclic Compounds
1990
- (14) Sheldrick, G; SHELXL 93 1993
- (15) Sheldrick, G; SHELXTL PC 1990
- (16) Shinkai, S; Tetrahedron Lett 1984, V25, P5315 CA

L7 ANSWER 4 OF 14 CA COPYRIGHT 2002 ACS

AN 130:209752 CA

TI Extraction and complexation of alkali, alkaline earth, and F-element
cations by calixaryl phosphine oxides

AU Arnaud-Neu, F.; Browne, J. K.; Byrne, D.; Marrs, D. J.; McKervey, M. A.;
O'Hagan, P.; Schwing-Weill, M. J.; Walker, A.

CS Laboratoire de Chimie-Physique, ECPM, Strasbourg, F-67000, Fr.

SO Chem.--Eur. J. (1999), 5(1), 175-186

CODEN: CEUJED; ISSN: 0947-6539

PB Wiley-VCH Verlag GmbH

DT Journal

LA English

CC 29-7 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 68, 79

AB A series of new calixarene derivs. with phosphine oxide groups on the
lower rim and, for comparison, a series of noncalixarene phosphine oxides
have been synthesized. Their extn. power for alkali and alk. earth
cations from aq. metal picrate soln. into dichloromethane have been detd.
as well as the stability consts. in methanol of the 1:1 complexes of
several members of the calixarene series. Important selectivity trends
are revealed by both methods. The extn. power from aq. nitrate solns. (1M
in HNO₃) towards europium(III), as a model for trivalent actinides, and
thorium(IV), as a model for tetravalent actinides, has been studied in
detail for eight sym. calixarene derivs., which differ in either
calixarene size, the substituent at the upper rim (tert-Bu or hydrogen) or
the no. of methylene groups sepg. the phenolic oxygen atoms from the
phosphorus atoms. The stoichiometry of the extd. species was
characterized by a classical log-log plot anal. All the calixarenes
tested are far better extractants than typical noncalixarene extractants,
for example, TOPO and CMPO, currently in use in the treatment of
radioactive waste; they ext. thorium better than europium. The influence

of the nitric acid concn. and of the sodium nitrate concn. in the aq. phase on the extn. efficiency was also examd. in order to assess the possible application of these compds. for the decategorization of liq. nuclear waste. Several thorium complexes have been characterized by their stability consts. in methanol.

ST calixaryl phosphine oxide prepn extn complexation alkali alk actinide; stability const alk earth cation calixaryl phosphine oxide

IT Complexation

Extractants

Extraction

Formation constant

(extn. and complexation of alkali, alk. earth, and F-element cations by calixaryl phosphine oxides)

IT Actinides

Alkali metal ions

Alkaline earth ions

RL: ANT (Analyte); RCT (Reactant); ANST (Analytical study)

(extn. and complexation of alkali, alk. earth, and F-element cations by calixaryl phosphine oxides)

IT 7439-93-2D, Lithium, calixarene phosphine oxide complexes 7439-95-4D, Magnesium, calixarene phosphine oxide complexes 7440-09-7D, Potassium, calixarene phosphine oxide complexes 7440-17-7D, Rubidium, calixarene phosphine oxide complexes 7440-23-5D, Sodium, calixarene phosphine oxide complexes 7440-24-6D, Strontium, calixarene phosphine oxide complexes 7440-29-1D, Thorium, calixarene and alkyl phosphine oxide complexes 7440-39-3D, Barium, calixarene phosphine oxide complexes 7440-46-2D, Cesium, calixarene phosphine oxide complexes 7440-53-1D, Europium, calixarene and alkyl phosphine oxide complexes 7440-70-2D, Calcium, calixarene phosphine oxide complexes

RL: ANT (Analyte); RCT (Reactant); ANST (Analytical study)

(extn. and complexation of alkali, alk. earth, and F-element cations by calixaryl phosphine oxides)

IT 2071-21-8D, thorium and europium complexes 4141-50-8D, thorium and europium complexes 40468-55-1D, thorium and europium complexes

53889-34-2D, thorium and europium complexes 197726-74-2 201538-20-7

RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); USES (Uses)

(extn. and complexation of alkali, alk. earth, and F-element cations by calixaryl phosphine oxides)

IT 171979-66-1P 172910-67-7P 172910-68-8P 172910-69-9P 172910-70-2P
172910-71-3P 220923-73-9P 220923-74-0P 220923-75-1P

RL: ARG (Analytical reagent use); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)

(extn. and complexation of alkali, alk. earth, and F-element cations by calixaryl phosphine oxides)

IT 171979-66-1D, alkali, alkali earth, lanthanide and actinide complexes 172910-67-7D, thorium and europium complexes 172910-68-8D, thorium and europium complexes 172910-69-9D, alkali, alkali earth, lanthanide and actinide complexes 172910-70-2D, thorium and europium complexes

172910-71-3D, thorium and europium complexes 201538-20-7D, alkali, alkali earth, lanthanide and actinide complexes 220923-73-9D, thorium and europium complexes 220923-74-0D, alkali, alkali earth, lanthanide and actinide complexes 220923-76-2D, alkali and alkali earth complexes

RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(extn. and complexation of alkali, alk. earth, and F-element cations by calixaryl phosphine oxides)

IT 33730-69-7 81475-22-1, p-tert-Butylcalix[5]arene 92003-62-8
92003-63-9 97600-39-0 97600-43-6 97600-45-8 97600-47-0

145307-26-2 163836-78-0

RL: RCT (Reactant)

(extn. and complexation of alkali, alk. earth, and F-element cations by calixaryl phosphine oxides)

IT 145307-27-3P 163836-79-1P 163836-80-4P 163836-81-5P
163836-82-6P 172910-72-4P 172910-73-5P 172910-74-6P 172910-75-7P
172910-76-8P 172910-77-9P 172910-78-0P 172910-79-1P 172910-80-4P
172910-81-5P 172910-82-6P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(extn. and complexation of alkali, alk. earth, and F-element cations by calixaryl phosphine oxides)

IT 542-92-7, Cyclopentadiene, reactions

RL: RCT (Reactant)

(reaction with bis(diphenylphosphinyl)acetylene)

IT 5112-95-8

RL: RCT (Reactant)

(reaction with cyclopentadiene)

RE.CNT 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Arnaud-Neu, F; J Am Chem Soc 1989, V111, P8681 CA
- (2) Arnaud-Neu, F; J Chem Soc Perkin Trans 2 1996, P1175 CA
- (3) Arnaud-Neu, F; New J Chem 1991, V15, P33 CA
- (4) Bohmer, V; Angew Chem 1995, V107, P785
- (5) Bohmer, V; Angew Chem Int Ed Engl 1995, V34, P713
- (6) Casnati, A; Chem Eur J 1996, V2, P436 CA
- (7) Casnati, A; J Am Chem Soc 1995, V117, P2767 CA
- (8) Charrier, C; Bull Soc Chim Fr 1966, P1002 CA
- (9) Dean, P; Can J Chem 1980, V58, P180 CA
- (10) Diamond, H; Solvent Extr Ion Exch 1986, V4, P1009 CA
- (11) Dieleman, C; J Chem Soc Dalton Trans 1995, P3097 CA
- (12) Dozol, J; Nuclear Science and Technology 1997, EUR 17615 EN
- (13) Dozol, J; Proceedings 4th EU Conference on Management and Disposal of Radioactive Waste 1997, P104
- (14) Gutsche, C; Calixarenes Monographs in Supramolecular Chemistry 1989
- (15) Gutsche, C; J Am Chem Soc 1982, V104, P2652 CA
- (16) Gutsche, C; J Org Chem 1985, V50, P5802 CA
- (17) Gutsche, C; Org Synth 1989, V68, P234
- (18) Gutsche, C; Org Synth 1989, V68, P238
- (19) Horwitz, E; Solvent Extr Ion Exch 1987, V5, P447 CA
- (20) Kakoi, T; J Membr Sci 1997, V136, P261 CA
- (21) Lobana, T; Transition Met Chem 1995, V20, P501 CA
- (22) Loeber, C; Bull Soc Chim Fr 1995, V132, P166 CA
- (23) Loeber, C; J Organomet Chem 1994, V475, P297 CA
- (24) Ludwig, R; Solvent Extr Ion Exch 1993, V11, P311 CA
- (25) Malone, J; J Chem Soc Chem Commun 1995, P2151 CA
- (26) Marczenko, Z; Spectrophotometric Determination of Elements 1976, V442
- (27) McKervey, M; Comprehensive Supramolecular Chemistry 1996, V1, P537 CA
- (28) Moran, J; J Org Chem 1994, V59, P5990 CA
- (29) Munch, J; Org Synth 1989, V68, P243
- (30) Munyejabo, V; Inorg Chem Acta 1994, V221, P133 CA
- (31) Nash, K; Solvent Extr Ion Exch 1993, V11, P729 CA
- (32) Ohto, K; Anal Sci 1995, V11, P893 CA
- (33) Perrin, D; Purification of Laboratory Chemicals Pergamon 1966
- (34) Schwinte, P; These de doctorat de l'Universite Louis Pasteur 1995
- (35) Sillen, L; Ark Kemi 1968, V31, P377
- (36) Stary, J; Talanta 1966, V13, P42
- (37) Stewart, D; Org Prep Proced Int 1993, V25, P137 CA
- (38) Vetrogon, V; Talanta 1994, V41, P2105 CA
- (39) Vicens, J; Calixarenes 50th Anniversary:Commemorative Issue, J Incl Phenom Mol Recogn Chem 1994, V19(1-4)
- (40) Vicens, J; Calixarenes a Versatile Class of Macrocyclic Compounds 1991
- (41) Yaftian, M; J Incl Phenom 1997, V27, P127 CA
- (42) Yaftian, M; J Incl Phenom 1997, V29, P137 CA

L7 ANSWER 5 OF 14 CA COPYRIGHT 2002 ACS

AN 130:110288 CA

TI Preparation of calixarene tubes as cation receptors

IN Schmitt, Philippe; Beer, Paul Derek

PA The Secretary of State for Defence, UK

SO PCT Int. Appl., 23 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM C07D493-18

ICS G01N027-333; A61K031-335; C01D003-14; C07B063-00

CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|----|--|------|----------|-----------------|----------|
| PI | WO 9900394 | A1 | 19990107 | WO 1998-GB1854 | 19980624 |
| | W: GB, JP, US
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL,
PT, SE | | | | |
| | GB 2342351 | A1 | 20000412 | GB 1999-27551 | 19980624 |
| | GB 2342351 | B2 | 20010822 | | |
| | EP 993462 | A1 | 20000419 | EP 1998-930943 | 19980624 |
| | R: AT, BE, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE, PT, IE, FI | | | | |
| | JP 20011515515 | T2 | 20010918 | JP 1999-505375 | 19980624 |
| | US 6326394 | B1 | 20011204 | US 2000-446458 | 20000630 |

PRAI GB 1997-13292 A 19970625
WO 1998-GB1854 W 19980624

OS MARPAT 130:110288

AB R1ZR2 [R1,R2 = phenolic H-removed calixarene residues; Z = O to O-bridging (CH₂)₂₋₆ or (CH₂CH₂O)_nCH₂CH₂; n = 1-5] were prep'd. Thus, calix[4]arene was condensed with a calix[4]arenetrakis(2-tosyloxyethyl) ether deriv. Data for characterization and properties of the prep'd. compd. were given.

ST calixarene tube prepn cation receptor

IT Alkali metal complexes

Cyclophanes

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

IT 197579-72-9P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. of calixarene tubes as cation receptors)

IT 60705-62-6 145307-27-3

RL: RCT (Reactant)
(prepn. of calixarene tubes as cation receptors)

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Commissariat Energie Atomique; WO 9412502 A 1994 CA
- (2) Commissariat Energie Atomique; WO 9424138 A 1994 CA
- (3) Ghidini, E; Journal of the American Chemical Society 1990, V112(19), P6979 CA
- (4) Gokel, G; Accounts of Chemical Research 1996, V29(9), P425 CA
- (5) King, A; Journal of the Chemical Society, Chemical Communications 1992, P582 CA
- (6) Shingijutsu Jigyodan; JP 06201639 A 1994 CA

L7 ANSWER 6 OF 14 CA COPYRIGHT 2002 ACS

AN 130:75219 CA

TI Carbonylation (hydroformylation and hydrocarbalkoxylation) reactions in the presence of transition metal: p-tert-butyl-calix[4]arene-based phosphine and phosphinite systems

AU Csok, Zsolt; Szalontai, Gabor; Czira, Gabor; Kollar, Laszlo

CS Department of Silicate and Materials Engineering, University of Veszprem, Veszprem, H-8200, Hung.

SO J. Organomet. Chem. (1998), 570(1), 23-29

CODEN: JORCAI; ISSN: 0022-328X

PB Elsevier Science S.A.

DT Journal

LA English

CC 78-7 (Inorganic Chemicals and Reactions)

Section cross-reference(s): 25, 29, 67

AB 5,11,17,23-Tetra-tert-butyl-25,26,27,28-tetrakis(2-diphenylphosphinoxyethoxy)calix[4]arene (5) and 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetrakis(2-diphenylphosphinoethoxy)calix[4]arene (6), as well as their platinum and palladium complexes (PtCl₂)₂(5), (PdCl₂)₂(5) were synthesized and characterized. In addn. to these transition metal-contg. complexes the catalytic systems formed in situ, from catalytic precursors PtCl₂(PhCN)₂, [Rh(nbd)Cl]₂ and PdCl₂(PhCN)₂ and the corresponding calixarene ligand, were tested as catalysts in hydroformylation and hydrocarbalkoxylation, resp. High chemoselectivity was obtained in hydroformylation in the presence of rhodium-contg. catalysts both with the above calixarene-based phosphine and phosphinite ligands. The

regioselectivity towards branched aldehyde shows a strong temp. dependence in case of phosphinite deriv. Although the platinum-contg. systems show much lower catalytic activity, the regioselectivities are undoubtedly higher than those obtained with PtCl₂(diphosphine)-SnCl₂ systems.

ST transition metal calixarene phosphine phosphinite complex prepn carbonylation catalyst; hydroformylation catalyst regioselective chemoselective rhodium platinum calixarene phosphine phosphinite; hydrocarbalkoxylation catalyst palladium calixarene phosphine phosphinite complex prepn

IT Carbonylation

(hydrocarbalkoxylation; of styrene in presence of rhodium, palladium and platinum phosphinoethoxy- and phosphinoxyethoxy-calix[4]arene complex hydroformylation or hydrocarbalkoxylation catalysts)

IT Carbonylation catalysts

(hydrocarbalkoxylation; prepn. and catalytic activity for hydroformylation or hydrocarbalkoxylation of styrene of rhodium, platinum and palladium phosphinoethoxy- and phosphinoxyethoxy-calix[4]arene complexes)

IT Transition metal calixarene complexes

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(prepn. and catalytic activity for hydroformylation or hydrocarbalkoxylation of styrene of rhodium, platinum and palladium phosphinoethoxy- and phosphinoxyethoxy-calix[4]arene complexes)

IT Hydroformylation

(regioselective; of styrene in presence of rhodium and platinum phosphinoethoxy- and phosphinoxyethoxy-calix[4]arene complex chemoselective and regioselective hydroformylation catalysts)

IT Hydroformylation catalysts

(regioselective; prepn. and catalytic activity for hydroformylation or hydrocarbalkoxylation of styrene of rhodium, platinum and palladium phosphinoethoxy- and phosphinoxyethoxy-calix[4]arene complexes)

IT Chemoselectivity

(towards aldehydes in hydroformylation of styrene in presence of rhodium and platinum phosphinoethoxy- and phosphinoxyethoxy-calix[4]arene complex hydroformylation or hydrocarbalkoxylation catalysts)

IT 12257-42-0, Chloro(norbornadiene)rhodium dimer 14873-63-3, Bis(benzonitrile)dichloroplatinum

RL: CAT (Catalyst use); RCT (Reactant); USES (Uses)
(catalyst precursor for chemoselective and regioselective hydroformylation of styrene)

IT 14220-64-5, Bis(benzonitrile)dichloropalladium

RL: CAT (Catalyst use); RCT (Reactant); USES (Uses)
(catalyst precursor for hydrocarbalkoxylation of styrene)

IT 100-42-5, reactions

RL: RCT (Reactant)
(catalytic activity for hydroformylation or hydrocarbalkoxylation of styrene of rhodium, platinum and palladium phosphinoethoxy- and phosphinoxyethoxy-calix[4]arene complexes)

IT 1079-66-9, Chlorodiphenylphosphine

RL: RCT (Reactant)
(for prepn. of (phosphinoethoxy)calix[4]arene)

IT 145307-27-3

RL: RCT (Reactant)
(for prepn. of (phosphinoethoxy)calix[4]arene and its transition metal complexes as carbonylation catalysts)

IT 4541-02-0, (Diphenylphosphino)lithium

RL: RCT (Reactant)
(for prepn. of (phosphinoxyethoxy)calix[4]arene)

IT 145307-26-2

RL: RCT (Reactant)
(for prepn. of (phosphinoxyethoxy)calix[4]arene and its transition metal complexes as carbonylation catalysts)

IT 100-41-4P, Ethylbenzene, preparation

RL: BYP (Byproduct); PREP (Preparation)
(formation in hydroformylation of styrene using rhodium or palladium

phosphinoxyethoxy- or phosphinoethoxy-calix[4]arene catalysts)

IT 218299-90-2P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);
USES (Uses)
(prepn. and catalytic activity for chemoselective and regioselective
hydroformylation of styrene)

IT 218299-97-9P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);
USES (Uses)
(prepn. and catalytic activity for hydrocarbalkoxylation of styrene)

IT 172910-72-4P 218300-17-5P
RL: CAT (Catalyst use); RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation); USES (Uses)
(prepn. and complexation with rhodium, palladium and platinum as
carbonylation catalyst precursor)

IT 103-25-3P, Methyl 3-phenylpropionate 2901-11-3P, tert-Butyl
2-phenylpropionate 16537-10-3P, tert-Butyl 3-phenylpropionate
31508-44-8P, Methyl 2-phenylpropionate
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. by hydrocarbalkoxylation of styrene using palladium
phosphinoxyethoxy- or phosphinoethoxy-calix[4]arene catalysts)

IT 93-53-8P, 2-Phenylpropanal 104-53-0P, 3-Phenylpropanal
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. by hydroformylation of styrene using rhodium or palladium
phosphinoxyethoxy- or phosphinoethoxy-calix[4]arene catalysts)

RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Abel, E; J Chem Soc 1959, P3178 CA
- (2) Agbossou, F; Chem Rev 1995, V95, P2485 CA
- (3) Arnaud-Neu, F; J Am Chem Soc 1989, V111, P8681 CA
- (4) Beer, P; Tetrahedron 1992, V45, P9917
- (5) Beller, M; J Mol Catal A 1995, V104, P17 CA
- (6) Botteghi, C; Chirality 1991, V3, P355 CA
- (7) Brown, C; J Chem Soc 1970, VA, P2760
- (8) Brunner, H; Handbook of Enantioselective Catalysis with Transition Metal Compounds 1993
- (9) Cameron, B; J Org Chem 1995, V60, P2802 CA
- (10) Cobben, P; J Am Chem Soc 1992, V114, P10573 CA
- (11) Colquhoun, H; Carbonylation:Direct Synthesis of Carbonyl Compounds 1991
- (12) Consiglio, G; Chimia 1976, V30, P26 CA
- (13) Consiglio, G; J Chem Soc Chem Commun 1983, P612 CA
- (14) Consiglio, G; Organometallics 1991, V10, P2046 CA
- (15) Consiglio, G; J Organomet Chem 1985, V279, P193
- (16) Cornils, B; New Synthesis with Carbon Monoxide 1980, P133
- (17) Floriani, C; Angew Chem Int Ed Engl 1989, V28, P1376
- (18) Gladiali-Bayon, S; Tetrahedron Asymmetry 1996, V6, P1453
- (19) Gutsche, C; Calixarenes:Monographs in Supramolecular Chemistry 1989
- (20) Gutsche, C; J Am Chem Soc 1988, V110, P6153 CA
- (21) Haelg, P; J Organomet Chem 1985, V296, P281 CA
- (22) Hartley, R; Organomet Chem Rev 1970, VA6, P119
- (23) Herrmann, W; Angew Chem Int Ed Engl 1997, V36, P1048
- (24) Kollar, L; J Organomet Chem 1987, V330, P305 CA
- (25) Kollar, L; J Organomet Chem 1989, V370, P257 CA
- (26) Loeber, C; Bull Soc Chim Fr 1995, V132, P166 CA
- (27) Loeber, C; J Chem Soc Dalton Trans 1996, P513 CA
- (28) Loeber, C; J Organomet Chem 1994, V475, P297 CA
- (29) Malone, J; J Chem Soc Chem Commun 1995, P2151 CA
- (30) Parrinello, G; J Am Chem Soc 1987, V109, P7122 CA
- (31) Sakai, N; J Am Chem Soc 1993, V115, P7033 CA
- (32) Sakai, N; J Chem Soc Chem Commun 1994, P395 CA
- (33) Sugi, Y; Chem Ind (Lond) 1975, P397 CA
- (34) Sugi, Y; Chem Lett 1976, P727 CA
- (35) Toth, I; Organometallics 1993, V12, P848 CA
- (36) Wieser, C; J Chem Soc Dalton Trans 1996, P4041 CA
- (37) Xu, W; J Chem Soc Chem Commun 1993, P145 CA

AN 129:127676 CA
TI Calixarenes Derivatized with Sulfur-Containing Functionalities as
Selective Extractants for Heavy and Precious Metal Ions
AU Yordanov, Alexander T.; Whittlesey, Bruce R.; Roundhill, D. Max
CS Dept. of Chemistry, Texas Tech. Univ., Lubbock, TX, USA
SO Inorg. Chem. (1998), 37(14), 3526-3531
CODEN: INOCAJ; ISSN: 0020-1669
PB American Chemical Society
DT Journal
LA English
CC 68-2 (Phase Equilibria, Chemical Equilibria, and Solutions)
Section cross-reference(s): 25, 75
AB The calix[4]arenes 5,11,17,23-tert-butyl-25,26,27,28-(2-methylthioethoxy)calix[4]arene, 25,26,27,28-(2-methylthioethoxy)calix[4]arene, and 5,11,17,23-tert-butyl-25,26,27,28-(2-thiophenecarboxy)ethoxy)calix[4]arene were prepd. The structure of 25,26,27,28-(2-methylthioethoxy)calix[4]arene was verified by x-ray crystallog. The crystals with the empirical formula C₄₀H₄₈O₄S₄ are monoclinic space group C2/c with a 20.428(2), b 10.581(1), c 20.445(2) .ANG., .beta. 118.461(5).degree., Z = 4. These calix[4]arenes are effective extractants for transferring heavy metal ions from aq. soln. into chloroform. The extn. of Sn(II), Hg(II), Ag(I), Pd(II), Au(III), MeHg(II), Pb(II) and Cd(II) into chloroform with these calix[4]arenes is compared with that performed with 5,11,17,23-tert-butyl-25,26,27,28-(2-N,N-dimethyldithiocarbamoylethoxy)calix[4]arene, 25,26,27,28-(2,N,N-dimethyldithiocarbamoylethoxy)calix[4]arene, and 5,11,17,23-tert-butyl-25,26,27,28-(2-mercaptopethoxy)calix[4]arene.
ST calixarene thioethoxy thiophenecarboxy prepn metal extn; heavy metal extn thioethoxycalixarene thiophenecarboxycalixarene thiocarbamoylethoxycalixarene; thiophenecarboxycalixarene prepn heavy metal extn; thioethoxycalixarene prepn structure heavy metal extn; crystal structure thioethoxycalixarene
IT Crystal structure
Molecular structure
(of (thioethoxy)calix[4]arene extractant for heavy and precious metal ions)
IT Extractants
Extraction
(prepn. of calix[4]arenes with sulfur-contg. functionalities for extn. of heavy and precious metal ions)
IT 7439-92-1, Lead, processes 7439-97-6, Mercury, processes 7440-05-3, Palladium, processes 7440-22-4, Silver, processes 7440-31-5, Tin, processes 7440-43-9, Cadmium, processes 7440-57-5, Gold, processes RL: PEP (Physical, engineering or chemical process); PROC (Process)
(extn. of heavy and precious metals using calix[4]arenes with sulfur-contg. functionalities)
IT 169561-46-0 169561-47-1 185385-78-8
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(for extn. of heavy and precious metal ions)
IT 5188-07-8, Sodium thiomethoxide 5271-67-0, 2-Thiophene carbonyl chloride 145307-26-2, 5,11,17,23-tert-Butyl-25,26,27,28-(2-hydroxyethoxy)calix[4]arene 169561-43-7, 5,11,17,23-tert-Butyl-25,26,27,28-(2-bromoethoxy)calix[4]arene 185385-77-7, 25,26,27,28-(2-Bromoethoxy)calix[4]arene
RL: RCT (Reactant)
(for prepn. of calix[4]arenes with sulfur-contg. functionalities for extn. of heavy and precious metal ions)
IT 204908-29-2P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(prepn. and crystal structure for extn. of heavy and precious metal ions)
IT 145237-26-9P 210285-59-9P
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(prepn. for extn. of heavy and precious metal ions)

L7 ANSWER 8 OF 14 CA COPYRIGHT 2002 ACS

AN 129:22700 CA

TI Chemical microsensors for detection of explosives and chemical warfare agents

IN Yang, Xiaoguang; Swanson, Basil I.

PA Regents of the University of California, USA; Yang, Xiaoguang; Swanson, Basil I.

SO PCT Int. Appl., 37 pp.

CODEN: PIXXD2

DT Patent

LA English

IC ICM G01N005-04

CC 80-2 (Organic Analytical Chemistry)

Section cross-reference(s): 50

FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|---|------|----------|-----------------|----------|
| PI | WO 9822795 | A1 | 19980528 | WO 1997-US21519 | 19971121 |
| | W: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| | RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG | | | | |
| | AU 9855887 | A1 | 19980610 | AU 1998-55887 | 19971121 |
| | US 6316268 | B1 | 20011113 | US 1999-308460 | 19990517 |
| PRAI | US 1996-31643 | P | 19961122 | | |
| | US 1997-50215 | P | 19970619 | | |
| | WO 1997-US21519 | W | 19971121 | | |

AB An article of manuf. is provided including a substrate having an oxide surface layer and a layer of a cyclodextrin deriv. chem. bonded to said substrate, said layer of a cyclodextrin deriv. adapted for the inclusion of selected compds., e.g., nitro-contg. org. compds., therewith. Such an article can be a chem. microsensor capable of detecting a resultant mass change from inclusion of the nitro-contg. org. compd.

ST microsensor explosive chem warfare agent

IT Chemical warfare agents

Explosives

Microsensors

(chem. microsensors for detection of explosives and chem. warfare agents)

IT Organophosphorus compounds

RL: ANT (Analyte); ANST (Analytical study)
(explosives and chem. warfare agents detn. by SAW microsensors)

IT Electronic device fabrication

(fabrication of covalent bonded cyclodextrin-siloxane polymer thin film on SAW device)

IT Monolayers

Surface acoustic wave devices

Transducers

(monolayer formation of heptakis(2-O-methyl)-.beta.-cyclodextrin on SAW transducer with siloxane linker)

IT Complexation

Piezoelectric materials

Surface acoustic wave sensors

(nitro-contg. org. compds. detection in environment by sensor with oxide layer and layer of cyclodextrin deriv. chem. bonded to substrate and adapted for inclusion of selected compds.)

IT Nitro compounds

RL: ANT (Analyte); ANST (Analytical study)

(nitro-contg. org. compds. detection in environment by sensor with oxide layer and layer of cyclodextrin deriv. chem. bonded to substrate and adapted for inclusion of selected compds.)

IT Oxides (inorganic), analysis

RL: ARU (Analytical role, unclassified); DEV (Device component use); ANST

(Analytical study); USES (Uses)
(nitro-contg. org. compds. detection in environment by sensor with
oxide layer and layer of cyclodextrin deriv. chem. bonded to substrate
and adapted for inclusion of selected compds.)

IT Polysiloxanes, uses
RL: DEV (Device component use); USES (Uses)
(reaction products with cyclodextrin derivs.; fabrication of covalent
bonded cyclodextrin-siloxane polymer thin film on SAW device)

IT 88-72-2, o-Nitrotoluene 98-95-3, Nitrobenzene, analysis 127-18-4,
Perchloroethylene, analysis 693-07-2, 2-Chloroethyl ethyl sulfide
756-79-6, DMMP 51360-33-9
RL: ANT (Analyte); ANST (Analytical study)
(explosives and chem. warfare agents detn. by SAW microsensors)

IT 9016-00-6D, Di-Me siloxane, SRU, reaction products with cyclodextrin
derivs. 31900-57-9D, Dimethylsilanediol homopolymer, reaction products
with cyclodextrin derivs. 207395-15-1D, reaction products with
polysiloxanes
RL: DEV (Device component use); USES (Uses)
(fabrication of covalent bonded cyclodextrin-siloxane polymer thin film
on SAW device)

IT 18817-29-3 52217-52-4, 7-Octenyltrichlorosilane
RL: RCT (Reactant)
(fabrication of covalent bonded cyclodextrin-siloxane polymer thin film
on SAW device)

IT 17947-99-8
RL: RCT (Reactant)
(monolayer formation of heptakis(2-O-methyl)-.beta.-cyclodextrin on SAW
transducer with siloxane linker)

IT 3344-77-2
RL: RCT (Reactant)
(monolayer formation of hexakis(2-O-benzyl)-.alpha.-cyclodextrin on SAW
transducer with ether linker)

IT 12619-70-4D, Cyclodextrin, derivs.
RL: ARG (Analytical reagent use); DEV (Device component use); ANST
(Analytical study); USES (Uses)
(nitro-contg. org. compds. detection in environment by sensor with
oxide layer and layer of cyclodextrin deriv. chem. bonded to substrate
and adapted for inclusion of selected compds.)

IT 60786-23-4P, Heptakis(2-O-methyl)-.beta.-cyclodextrin 123154-93-8P,
Hexakis(2-O-methyl)-.alpha.-cyclodextrin 123155-01-1P 123155-05-5P,
Heptakis(2,3-di-O-methyl)-.beta.-cyclodextrin 123155-20-4P,
Heptakis(2-O-benzyl)-.beta.-cyclodextrin 145307-26-2P
161178-32-1P 161636-48-2P, Heptakis(2,3-di-O-benzyl)-.beta.-cyclodextrin
207395-12-8P
RL: ARU (Analytical role, unclassified); DEV (Device component use); SPN
(Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES
(Uses)
(nitro-contg. org. compds. detection in environment by sensor with
oxide layer and layer of cyclodextrin deriv. chem. bonded to substrate
and adapted for inclusion of selected compds.)

IT 74-88-4, Methyl iodide, reactions 100-44-7, Benzyl chloride, reactions
107-15-3, 1,2-Ethanediamine, reactions 2695-48-9, 8-Bromo-1-octene
7585-39-9, .beta.-Cyclodextrin 7646-69-7, Sodium hydride 9004-73-3,
Poly(methylhydrosiloxane) 10016-20-3, .alpha.-Cyclodextrin 16949-15-8,
Lithium borohydride 26628-22-8, Sodium azide 97600-39-0 122566-69-2,
Heptakis(2-O-tosyl)-.beta.-cyclodextrin 123155-03-3,
Heptakis(6-O-tert-butyldimethylsilyl)-.beta.-cyclodextrin
RL: RCT (Reactant)
(nitro-contg. org. compds. detection in environment by sensor with
oxide layer and layer of cyclodextrin deriv. chem. bonded to substrate
and adapted for inclusion of selected compds.)

IT 84216-71-7P, Mono(2-O-tosyl)-.beta.-cyclodextrin 146469-71-8P,
Hexakis(2-O-tosyl)-.alpha.-cyclodextrin 155635-16-8P,
Mono(2-ethylenediamine)-.beta.-cyclodextrin 207395-11-7P 207395-13-9P,
Hexakis(2-O-azido)-.alpha.-cyclodextrin 207395-14-0P 207395-15-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(nitro-contg. org. compds. detection in environment by sensor with

oxide layer and layer of cyclodextrin deriv. chem. bonded to substrate
 and adapted for inclusion of selected compds.)
 IT 9004-73-3DP, Poly(methylhydrosiloxane), reaction products with
 heptakis(2,3-di-O-methyl-6-O-8-octene-1-enyl)-.beta.-cyclodextrin
 84216-71-7DP, lanthanide complexes
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (nitro-contg. org. compds. detection in environment by sensor with
 oxide layer and layer of cyclodextrin deriv. chem. bonded to substrate
 and adapted for inclusion of selected compds.)
 IT 112-92-5, 1-Octadecanol 3069-42-9, Octadecyltrimethoxysilane
 83048-65-1
 RL: DEV (Device component use); USES (Uses)
 (self assembled monolayer formation of long alkyl chains on SAW
 transducer with siloxane or ether linkages)

L7 ANSWER 9 OF 14 CA COPYRIGHT 2002 ACS

AN 127:318947 CA

TI Calix[4]tube: a tubular receptor with remarkable potassium ion selectivity
 AU Schmitt, Philippe; Beer, Paul D.; Drew, Michael G. B.; Scheen, Paul D.
 CS Inorganic Chemistry Laboratory, University of Oxford, Oxford, OX1 3QR, UK
 SO Angew. Chem., Int. Ed. Engl. (1997), 36(17), 1840-1842
 CODEN: ACIEAY; ISSN: 0570-0833

PB Wiley-VCH

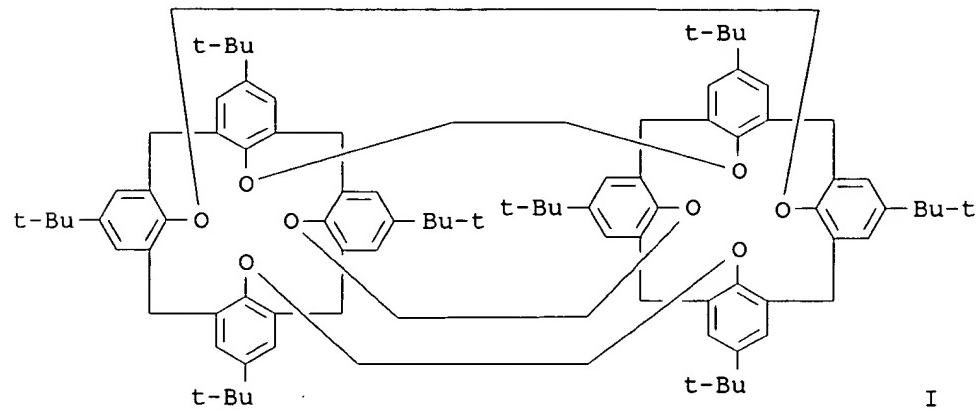
DT Journal

LA English

CC 28-23 (Heterocyclic Compounds (More Than One Hetero Atom))

Section cross-reference(s): 75, 78

GI



AB The title compd. (I) was prep'd. by condensing p-tert-butylcalix[4]arene
 with its pertosyloxyethyl deriv. I reacts with K₂CO₃ in H₃CCN to form a
 1:1 complex whose crystal structure is reported. The K ion is located at
 the center of a slightly flattened cube formed by the OCH₂CH₂O bridges.
 ST calixarene tubular prepn potassium complexation; crystal structure tubular
 calixarene potassium complex; mol structure tubular calixarene potassium
 complex
 IT Molecular mechanics
 (calcns. for K⁺ uptake by tubular calixarene)
 IT Conformation
 Crystal structure
 Molecular structure
 (of a tubular calixarene and its K complex)
 IT Potassium channel
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation)
 (tubular calixarene as model for)
 IT 197579-75-2P
 RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
 (crystal structure; prepn. and K complexation of a tubular calixarene)

IT 197579-72-9P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and K complexation of a tubular calixarene)

IT 197579-73-0P 197579-74-1P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and K complexation of a tubular calixarene)

IT 60705-62-6, p-tert-Butylcalix[4]arene 145307-27-3
RL: RCT (Reactant)
(prepn. and K complexation of a tubular calixarene)

L7 ANSWER 10 OF 14 CA COPYRIGHT 2002 ACS
AN 124:353851 CA

TI Chemically modified calix[4]arenes as selective complexants for heavy metal ions: comparison with crowns and thiacrowns

AU Yordanov, Alex T.; Roundhill, D. Max

CS Department of Chemistry, Tulane Univ., New Orleans, LA, 70118, USA

SO New J. Chem. (1996), 20(4), 447-451
CODEN: NJCHE5; ISSN: 1144-0546

DT Journal
LA English
CC 68-2 (Phase Equilibria, Chemical Equilibria, and Solutions)
Section cross-reference(s): 25

AB The two lower rim functionalized calixarenes 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetra(2-N,N-dimethyldithiocarbamoylethoxy)calix[4]arene (I) and 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetra(2-mercaptopethoxy)calix[4]arene (II), are effective extractants for Hg²⁺, Hg²²⁺, Ag⁺ and Au³⁺, but not for Pb²⁺, Cd²⁺, Cd²⁺, Ni²⁺ and Pt²⁺. For MeHg⁺ II is an effective extractant, but I is relatively ineffective. The emerging role of calixarenes as selective complexants for metal ions is discussed in context with other complexants such as chelate, macrocyclic and lariat ether ligands.

ST lower rim calixarene prepn metal extn
IT Extraction
(prepn. of lower rim functionalized calix[4]arenes and their use as selective complexants for heavy metal ions, crowns and thiacrowns in relation to)

IT Metals, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(heavy, prepn. of lower rim functionalized calix[4]arenes and their use as selective complexants for heavy metal ions, crowns and thiacrowns in relation to)

IT Cyclophanes
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(meta-, prepn. of lower rim functionalized calix[4]arenes and their use as selective complexants for heavy metal ions, crowns and thiacrowns in relation to)

IT 145307-27-3P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation)
(in prepn. of lower rim functionalized calix[4]arenes)

IT 128-04-1, Sodium N,N-dimethyldithiocarbamate 10387-40-3, Potassium thioacetate
RL: RCT (Reactant)
(in prepn. of lower rim functionalized calix[4]arenes)

IT 169561-46-0P 169561-47-1P
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); USES (Uses)
(prepn. of lower rim functionalized calix[4]arenes and their use as selective complexants for heavy metal ions, crowns and thiacrowns in relation to)

IT 12596-26-8, Mercury dimer ion(hg²²⁺), processes 14302-87-5, processes 14701-21-4, Silver, ion(ag⁺), processes 16065-91-1, Gold, ion(au³⁺), processes 22967-92-6
RL: PEP (Physical, engineering or chemical process); PROC (Process)

(prep. of lower rim functionalized calix[4]arenes and their use as selective complexants for heavy metal ions, crowns and thiacrowns in relation to)

IT 169561-43-7P 177191-42-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prep. of lower rim functionalized calix[4]arenes and their use as selective complexants for heavy metal ions, crowns and thiacrowns in relation to)

L7 ANSWER 11 OF 14 CA COPYRIGHT 2002 ACS
AN 124:213117 CA

TI Solvent extraction of divalent palladium and platinum from aqueous solutions of their chloro complexes using an N,N-dimethyldithiocarbamoylethoxy substituted calix[4]arene
AU Yordanov, Alexander T.; Mague, Joel T.; Roundhill, D. Max
CS Department of Chemistry, Tulane University, New Orleans, LA, 70118, USA
SO Inorg. Chim. Acta (1995), 240(1-2), 441-6
CODEN: ICHAA3; ISSN: 0020-1693

DT Journal

LA English

CC 68-2 (Phase Equilibria, Chemical Equilibria, and Solutions)
Section cross-reference(s): 75

AB The compd. 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetra-(2-bromoethoxy)calix[4]arene has been prep'd. by first converting 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetra-(2-hydroxyethoxy)calix[4]arene into the tosylate, and then to the product by reaction with LiBr. The compd. crystal structure was detd. The final R value for 2391 unique reflections was 0.061. The compd. reacts with excess sodium N,N-dimethyldithiocarbamate to give 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetra-(2-N,N-dimethyldithiocarbamoyl-ethoxy)calix[4]arene. This compd. is an effective extractant for transferring palladium(II) from an aq. to a chloroform phase. No extn. of PtCl₄²⁻ is obsd. under thermal conditions. Under photochem. conditions using a mixt. of PtCl₄²⁻ and PtCl₆²⁻, extn. of platinum into the chloroform layer is obsd. An explanation for this observation is given.

ST extn palladium platinum aq chlorocomplex calixarene

IT Molecular structure

(of calixarene complexes used in solvent extn. of bivalent palladium and platinum from chloro-complexes and of related complexes formed in extn.)

IT 169561-43-7P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)

(extn. of bivalent palladium or platinum from chloro-complex solns. by)

IT 145307-26-2

RL: RCT (Reactant)

(in prepn. of 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetra-(2-bromoethoxy)calix[4]arene used in solvent extn. of bivalent metals)

IT 7440-06-4, Platinum, properties

RL: PRP (Properties); REM (Removal or disposal); PROC (Process)

(solvent extn. of bivalent, from aq. chloro complex solns., by a calix[4]arene)

IT 7440-05-3, Palladium, properties

RL: PRP (Properties); REM (Removal or disposal); PROC (Process)

(solvent extn. of bivalent, from aq. chloro-complex solns., by a calix[4]arene)

IT 7440-05-3D, Palladium, chloro complexes 7440-06-4D, Platinum, chloro complexes

RL: PRP (Properties); REM (Removal or disposal); PROC (Process)

(solvent extn. of, by a calix[4]arene)

IT 67-66-3, Chloroform, reactions

RL: RCT (Reactant)

(transfer of palladium(II) from aq. to a soln. of, using a calix[4]arene)

L7 ANSWER 12 OF 14 CA COPYRIGHT 2002 ACS
AN 124:176266 CA

TI Calix[n]arene phosphine oxides. A new series of cation receptors for extraction of europium, thorium, plutonium and americium in nuclear waste treatment

AU Malone, John F.; Marrs, Debbie J.; McKervey, M. Anthony; O'Hagan, Paul; Thompson, Norris; Walker, Andrew; Arnaud-Neu, Francoise; Mauprizez, Oliver; Schwing-Weill, Marie-Jose; et al.

CS Sch. Chem., Queen's Univ., Belfast, BT9 5AG, UK

SO J. Chem. Soc., Chem. Commun. (1995), (20), 2151-3

CODEN: JCCCAT; ISSN: 0022-4936

DT Journal

LA English

CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 25, 71, 75

GI For diagram(s), see printed CA Issue.

AB A novel class of calixarene derivs. with phosphine oxide residues [calix-(OCH₂CH₂POPh₂)_n], e.g., I, attached to the lower rim showing high efficiency in extn. of EuIII, ThIV, PuIV, and AmIV from simulated nuclear waste is reported. The crystal structure of I was detd.

ST phosphinylethoxycalixarene prepn nuclear waste extn; plutonium extn phosphinylethoxycalixarene; americium extn phosphinylethoxycalixarene; thorium extn phosphinylethoxycalixarene; europium extn phosphinylethoxycalixarene; crystal structure phosphinylethoxycalixarene; mol structure phosphinylethoxycalixarene

IT Crystal structure
Molecular structure
(of phosphinylethoxycalixarene)

IT Radioactive wastes
(phosphinylethoxycalixarenes for extn. of metals from)

IT 171979-66-1P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(crystal structure; prepn. of calix[n]arene phosphine oxides for extn. of europium, thorium, plutonium and americium from nuclear wastes)

IT 92003-62-8 92003-63-9 97600-39-0 97600-43-6 97600-45-8
97600-47-0
RL: RCT (Reactant)
(prepn. of calix[n]arene phosphine oxides for extn. of europium, thorium, plutonium and americium from nuclear wastes)

IT 145307-26-2P 145307-27-3P 163836-78-0P 163836-79-1P
163836-80-4P 163836-81-5P 163836-82-6P 172910-72-4P 172910-73-5P
172910-74-6P 172910-75-7P 172910-76-8P 172910-77-9P 172910-78-0P
172910-79-1P 172910-80-4P 172910-81-5P 172910-82-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. of calix[n]arene phosphine oxides for extn. of europium, thorium, plutonium and americium from nuclear wastes)

IT 7440-07-5, Plutonium, processes 7440-29-1, Thorium, processes
7440-35-9, Americium, processes 7440-53-1, Europium, processes
RL: REM (Removal or disposal); PROC (Process)
(prepn. of calix[n]arene phosphine oxides for extn. of europium, thorium, plutonium and americium from nuclear wastes)

IT 172910-67-7P 172910-68-8P 172910-69-9P 172910-70-2P 172910-71-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of calix[n]arene phosphine oxides for extn. of europium, thorium, plutonium and americium from nuclear wastes)

L7 ANSWER 13 OF 14 CA COPYRIGHT 2002 ACS

AN 123:9104 CA

TI Synthesis and Structural Characterization of Calix[4]arenes, Calix[6]arenes, and Calix[8]arenes with 3-Hydroxypropoxy or 2-Hydroxyethoxy Functional Groups Appended onto the Lower Rim

AU Moran, Justin K.; Georgiev, Emil M.; Yordanov, Alex T.; Mague, Joel T.; Roundhill, D. Max

CS Department of Chemistry, Tulane University, New Orleans, LA, 70118, USA

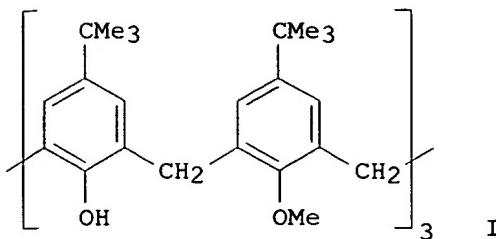
SO J. Org. Chem. (1994), 59(20), 5990-8

CODEN: JOCEAH; ISSN: 0022-3263

DT Journal

LA English

CC 25-7 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)



- AB The compd. 5,11,17,23,29,35-hexa-tert-butyl-37,39,41-trihydroxy-38,40,42-trimethoxycalix[6]arene (I) has been prep'd. by treating 5,11,17,23,29,35-hexa-tert-butylcalix[6]arene with potassium carbonate, followed by Me p-toluenesulfonate. The analogous reaction with the unsubstituted calix[6]arene gives 37,38,39-trihydroxy-40,41,42-trimethoxycalix[6]arene (II). Treating I or 5,11,17,23-tetra-tert-butyl-25,27-dihydroxy-26,28-dimethoxycalix[4]arene with sodium hydride, followed by allyl bromide, gives 5,11,17,23,29,35-hexa-tert-butyl-37,39,41-tris(allyloxy)-38,40,42-trimethoxycalix[6]arene (III) or 5,11,17,23-tetra-tert-butyl-25,27-bis(allyloxy)-26,28-dimethoxycalix[4]arene (IV), resp. III and IV react with BH3, followed by H2O2, to give 5,11,17,23,29,35-hexa-tert-butyl-37,39,41-tris(3-hydroxypropoxy)-38,40,42-trimethoxycalix[6]arene and 5,11,17,23-tetra-tert-butyl-25,27-bis(3-hydroxypropoxy)-26,28-dimethoxycalix[4]arene, resp. A general procedure for the synthesis of 2-hydroxyethoxy-substituted calixarenes involves redn. of the corresponding Et calixaryl acetates with LiAlH4. The procedure has been used to synthesize 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetrakis(2-hydroxyethoxy)calixarene, 25,26,27,28-tetra(2-hydroxyethoxy)calix[4]arene (V), 5,11,17,23,29,35-hexa-tert-butyl-37,38,39,40,41,42-hexakis(2-hydroxyethoxy)calix[6]arene (VI), 37,38,39,40,41,42-hexa(2-hydroxyethoxy)calix[6]arene, 5,11,17,23,29,35,41,47-octa-tert-butyl-49,50,51,52,53,54,55,56-octakis(2-hydroxyethoxy)calix[8]arene, and 49,50,51,52,53,54,55,56-octakis(2-hydroxyethoxy)calix[8]arene. Compds. II, III, IV, V, and VI have been characterized by x-ray crystallog. The conformations of the tetrols, hexols, and octols have been computationally explored using mol. mechanics calcns.
- ST calixarene hydroxyalkoxy deriv prepn x ray; conformation calixarene polyol mol mechanics; crystal structure calixarene hydroxyalkoxy deriv
- IT Conformation and Conformers
- IT Crystal structure
- IT Molecular mechanics
- IT Molecular structure
(of calixarene hydroxyalkoxy derivs.)
- IT 122406-45-5
RL: RCT (Reactant)
(allylation of)
- IT 78092-53-2 96107-95-8
RL: RCT (Reactant)
(methylation of)
- IT 138709-55-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and allylation of)
- IT 145307-26-2P 163836-80-4P 163836-81-5P 163836-82-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and mol. mechanics calcns. for)
- IT 149507-83-5P 163836-76-8P 163836-77-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)
- IT 156746-92-8P 163836-75-7P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation)

(prep., x-ray anal., and hydroboration-oxidn. of)

IT 163836-78-0P 163836-79-1P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)

(prep., x-ray anal., and mol. mechanics calcns. for)

IT 92003-62-8 92003-63-9 97600-39-0 97600-43-6 97600-45-8

97600-47-0

RL: RCT (Reactant)

(redn. of)

L7 ANSWER 14 OF 14 CA COPYRIGHT 2002 ACS

AN 118:124176 CA

TI Transduction of selective recognition of heavy metal ions by chemically modified field effect transistors (CHEMFETs)

AU Cobben, Peter L. H. M.; Egberink, Richard J. M.; Bomer, Johan G.; Bergveld, Piet; Verboom, Willem; Reinhoudt, David N.

CS Lab. Org. Chem., Univ. Twente, Enschede, 7500 AE, Neth.

SO J. Am. Chem. Soc. (1992), 114(26), 10573-82

CODEN: JACSAT; ISSN: 0002-7863

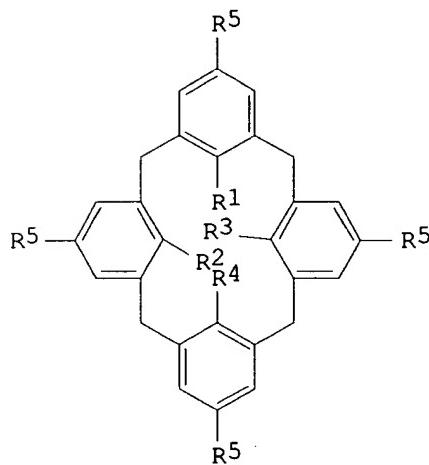
DT Journal

LA English

CC 25-29 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)

Section cross-reference(s): 76

GI



AB Specifically substituted calix[4]arenes that complex selectively silver I ($R_1 = R_3 = OCH_2CH_2SMe$, $R_2 = R_4 = OH$, $R_5 = CMe_3$) (II), copper I [$(R_1-R_4 = OCH_2CH_2SC(S)NEt_2$, $R_5 = CMe_3$] (III), cadmium I [$R_1-R_4 = OCH_2CH_2OCH_2C(S)NMe_2$, $R_5 = CMe_3$] (IV), and lead I [$R_1-R_4 = OCH_2C(S)NMe_2$, $R_5 = CMe_3$] (V) cations were synthesized via di- and tetraalkylation of p-tert-butylcalix[4]arene. Calix[4]arenes derivatized with thioether, thioamide, and dithiocarbamoyl functionalities could be obtained in high overall yields. Integrated on a chem. modified field effect transistor (CHEMFET) the selective complexation of heavy metal ions by these calix[4]arenes is transduced directly into an elec. signal. An architecture for CHEMFETs is used in which a hydrophilic polyHEMA hydrogel is covalently attached between the gate oxide surface of a modified ISFET and the hydrophobic sensing membrane that contains the receptor mol. CHEMFETs based on the calix[4]arene (II) with two diametrically substituted thioether functionalities responded selectively (60 mV decade $^{-1}$) to a change in silver activity in the aq. soln. in the presence of potassium, calcium, cadmium, and copper ions ($\log K_{i,j} \approx -4$). The selectivity toward mercury ($\log K_{i,j} = -2.7$) is comparable to the best neutral carrier based ISE so far. The calix[4]arene III, with four dithiocarbamoyl groups, incorporated in a CHEMFET responded Nernstian (30

mV decade⁻¹) to a change in copper activity. The calix[4]arene IV, which has four dimethylthiocarbamoylmethoxyethoxy substituents, was selective in a CHEMFET (30 mV decade⁻¹) toward cadmium in the presence of calcium and potassium ions. Two classes of ionophores can be distinguished for the selective detection of lead(II) cations by CHEMFETs, oxamide and thioamide ionophores, resp. Tetrasubstitution of the calix[4]arene with thioamide groups V is a prerequisite for the selective detection of lead and leads to a highly selective CHEMFET ($\log K_{i,j} = -3.4$ to -5.2).

- ST cadmium selective FET calixarene complex; silver selective FET calixarene complex; copper selective FET calixarene complex; calixarene complex metal selective FET; metal selective metacyclophane complex FET
- IT Transistors
(field-effect, cadmium-selective, calixarene derivs. for)
- IT Transistors
(field-effect, copper-selective, calixarene derivs. for)
- IT Transistors
(field-effect, silver-selective, calixarene derivs. for)
- IT Cyclophanes
- RL: PRP (Properties)
(meta-, metal complexing by, in chem. modified field effect transistors)
- IT 105-36-2, Ethyl bromoacetate
- RL: RCT (Reactant)
(alkylation by, of calixarene deriv.)
- IT 542-81-4, 2-Chloroethyl methyl sulfide 2675-89-0, N,N-Dimethyl-2-chloroacetamide
- RL: RCT (Reactant)
(alkylation by, of calixarene derivs.)
- IT 60705-62-6 145237-29-2
- RL: RCT (Reactant)
(alkylation of, by chloroethyl Me sulfide)
- IT 813-77-4, Dimethyl chlorophosphate
- RL: RCT (Reactant)
(phosphorylation by, of calixarene derivs.)
- IT 74568-07-3
- RL: RCT (Reactant)
(phosphorylation of, by di-Et chlorophosphate)
- IT 145237-43-0P 145237-45-2P
- RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and alkylation by dimethylchloroacetamide)
- IT 145237-41-8P
- RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and cadmium complexing properties in FET)
- IT 145237-31-6P
- RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and copper-complexing properties and FET)
- IT 145237-28-1P
- RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and dephosphorylation of)
- IT 145237-46-3P
- RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and lead complexing properties in FET)
- IT 145237-36-1P 145237-38-3P 145237-40-7P 145237-42-9P 145280-28-0P
- RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and reaction with Lawesson's reagent)
- IT 145237-34-9P 145307-27-3P
- RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and reaction with sodium diethyldithiocarbamate)
- IT 137693-26-6P
- RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and reactions of)
- IT 97600-39-0P 145237-32-7P
- RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and redn. by lithium aluminum hydride)
- IT 145237-26-9P 145237-27-0P 145237-30-5P 145237-35-0P 145237-37-2P
145237-39-4P 145237-44-1P
- RL: SPN (Synthetic preparation); PREP (Preparation)

IT 145237-25-8P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (prepn., alkylation by chloroethyl Me sulfide, and its silver
 complexing properties in FET)

IT 145237-33-8P **145307-26-2P**
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
 (prepn., tosylation, and alkylation by dimethylchloroacetamide)

IT 148-18-5
 RL: RCT (Reactant)
 (reaction of, with calixarene tosylated derivs.)

IT 19172-47-5, Lawesson's reagent
 RL: RCT (Reactant)
 (sulfuration by, of hydroxy calixarene derivs.)

| | | | |
|--|------------------|------------------|---------------|
| => file uspatall | | | |
| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION | |
| FULL ESTIMATED COST | 34.94 | 92.17 | |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | | SINCE FILE ENTRY | TOTAL SESSION |
| CA SUBSCRIBER PRICE | -8.26 | -8.26 | |

FILE 'USPATFULL' ENTERED AT 13:07:54 ON 23 JAN 2002
CA INDEXING COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'USPAT2' ENTERED AT 13:07:54 ON 23 JAN 2002
CA INDEXING COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

=> s 12
L8

=> d pn, ab, kwic 1-2

L8 ANSWER 1 OF 2 USPATFULL
PI US 6326394 B1 20011204
WO 9900394 19990107
AB A cyclic compound of formula (I) ##STR1##

wherein R.sup.x groups which may be the same or different are selected from --O--(CH₂).sub.2).sub.n--O-- where n is an integer of from 2-6; R.sup.y and R.sup.z groups which may be the same or different are independently selected from hydrogen, halogen or a hydrocarbyl group; R.sup.a together with R.sup.b of the adjacent phenyl ring and R.sup.c together with R.sup.d of the adjacent phenyl ring form a group of formula --(CH₂).sub.2).sub.m-- or --(CH₂).sub.2).sub.p--O-- where m and p are integers of from 1-5, and each group R.sup.a -R.sup.b and R.sup.c -R.sup.d may be the same or different; and x is an integer of 2 or more, such as 4. Compounds of formula (I) display particular selectivity for specific ions such as potassium ions. They are useful inter alia in reactions where scavenging of a specific cation is required or as ion specific electrodes.

IT 60705-62-6 145307-27-3
(prep. of calixarene tubes as cation receptors)

L8 ANSWER 2 OF 2 USPATFULL
PI US 6316268 B1 20011113
WO 9822795 19980528

AB An article of manufacture is provided including a substrate having an oxide surface layer and a layer of a cyclodextrin derivative chemically bonded to said substrate, said layer of a cyclodextrin derivative adapted for the inclusion of selected compounds, e.g., nitro-containing organic compounds, therewith. Such an article can be a chemical microsensor capable of detecting a resultant mass change from inclusion of the nitro-containing organic compound.

IT 60786-23-4P, Heptakis(2-O-methyl)-.beta.-cyclodextrin 123154-93-8P,
Hexakis(2-O-methyl)-.alpha.-cyclodextrin 123155-01-1P 123155-05-5P,
Heptakis(2,3-di-O-methyl)-.beta.-cyclodextrin 123155-20-4P,
Heptakis(2-O-benzyl)-.beta.-cyclodextrin 145307-26-2P
161178-32-1P 161636-48-2P, Heptakis(2,3-di-O-benzyl)-.beta.-
cyclodextrin 207395-12-8P
(nitro-contg. org. compds. detection in environment by sensor with
oxide layer and layer of cyclodextrin deriv. chem. bonded to substrate
and adapted for inclusion of selected compds.)

=> d his

(FILE 'HOME' ENTERED AT 13:03:07 ON 23 JAN 2002)

FILE 'REGISTRY' ENTERED AT 13:03:14 ON 23 JAN 2002

L1 56 S CALIX AND HYDROXY NOT 8
L2 2 S CALIX AND ETHANOL
L3 0 S CALIX AND METHANOL
L4 0 S CALIX AND PROPANOL
L5 0 S CALIX AND ANOL
L6 145 S CALIX AND OL

FILE 'CA' ENTERED AT 13:06:54 ON 23 JAN 2002

L7 14 S L2

FILE 'USPATFULL, USPAT2' ENTERED AT 13:07:54 ON 23 JAN 2002

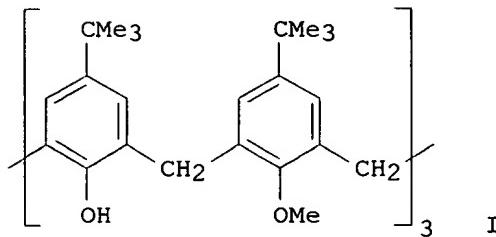
L8 2 S L2

=> log y

| COST IN U.S. DOLLARS | SINCE FILE ENTRY | TOTAL SESSION |
|--|------------------|---------------|
| FULL ESTIMATED COST | 5.66 | 97.83 |
| DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS) | SINCE FILE ENTRY | TOTAL SESSION |
| CA SUBSCRIBER PRICE | 0.00 | -8.26 |

STN INTERNATIONAL LOGOFF AT 13:08:17 ON 23 JAN 2002

L7 ANSWER 13 OF 14 CA COPYRIGHT 2002 ACS
 AN 123:9104 CA
 TI Synthesis and Structural Characterization of Calix[4]arenes,
 Calix[6]arenes, and Calix[8]arenes with 3-Hydroxypropoxy or
 2-Hydroxyethoxy Functional Groups Appended onto the Lower Rim
 AU Moran, Justin K.; Georgiev, Emil M.; Yordanov, Alex T.; Mague, Joel T.;
 Roundhill, D. Max
 CS Department of Chemistry, Tulane University, New Orleans, LA, 70118, USA
 SO J. Org. Chem. (1994), 59(20), 5990-8
 CODEN: JOCEAH; ISSN: 0022-3263
 DT Journal
 LA English
 CC 25-7 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
 Section cross-reference(s): 75
 GI



AB The compd. 5,11,17,23,29,35-hexa-tert-butyl-37,39,41-trihydroxy-38,40,42-trimethoxycalix[6]arene (I) has been prep'd. by treating 5,11,17,23,29,35-hexa-tert-butylcalix[6]arene with potassium carbonate, followed by Me p-toluenesulfonate. The analogous reaction with the unsubstituted calix[6]arene gives 37,38,39-trihydroxy-40,41,42-trimethoxycalix[6]arene (II). Treating I or 5,11,17,23-tetra-tert-butyl-25,27-dihydroxy-26,28-dimethoxycalix[4]arene with sodium hydride, followed by allyl bromide, gives 5,11,17,23,29,35-hexa-tert-butyl-37,39,41-tris(allyloxy)-38,40,42-trimethoxycalix[6]arene (III) or 5,11,17,23-tetra-tert-butyl-25,27-bis(allyloxy)-26,28-dimethoxycalix[4]arene (IV), resp. III and IV react with BH3, followed by H2O2, to give 5,11,17,23,29,35-hexa-tert-butyl-37,39,41-tris(3-hydroxypropoxy)-38,40,42-trimethoxycalix[6]arene and 5,11,17,23-tetra-tert-butyl-25,27-bis(3-hydroxypropoxy)-26,28-dimethoxycalix[4]arene, resp. A general procedure for the synthesis of 2-hydroxyethoxy-substituted calixarenes involves redn. of the corresponding Et calixaryl acetates with LiAlH4. The procedure has been used to synthesize 5,11,17,23-tetra-tert-butyl-25,26,27,28-tetrakis(2-hydroxyethoxy)calixarene, 25,26,27,28-tetra(2-hydroxyethoxy)calix[4]arene (V), 5,11,17,23,29,35-hexa-tert-butyl-37,38,39,40,41,42-hexakis(2-hydroxyethoxy)calix[6]arene (VI), 37,38,39,40,41,42-hexa(2-hydroxyethoxy)calix[6]arene, 5,11,17,23,29,35,41,47-octa-tert-butyl-49,50,51,52,53,54,55,56-octakis(2-hydroxyethoxy)calix[8]arene, and 49,50,51,52,53,54,55,56-octakis(2-hydroxyethoxy)calix[8]arene. Compds. II, III, IV, V, and VI have been characterized by x-ray crystallog. The conformations of the tetrols, hexols, and octols have been computationally explored using mol. mechanics calcns.

ST calixarene hydroxyalkoxy deriv prep'n x ray; conformation calixarene polyol mol mechanics; crystal structure calixarene hydroxyalkoxy deriv

IT Conformation and Conformers

Crystal structure

Molecular mechanics

Molecular structure

(of calixarene hydroxyalkoxy derivs.)

IT 122406-45-5

RL: RCT (Reactant)

(allylation of)

IT 78092-53-2 96107-95-8

RL: RCT (Reactant)
(methylation of)

IT 138709-55-4P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and allylation of)

IT 145307-26-2P 163836-80-4P 163836-81-5P 163836-82-6P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and mol. mechanics calcns. for)

IT 149507-83-5P 163836-76-8P 163836-77-9P

RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

IT 156746-92-8P 163836-75-7P

RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
(Preparation)

(prepn., x-ray anal., and hydroboration-oxidn. of)

IT 163836-78-0P 163836-79-1P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn., x-ray anal., and mol. mechanics calcns. for)

IT 92003-62-8 92003-63-9 97600-39-0 97600-43-6 97600-45-8

97600-47-0

RL: RCT (Reactant)
(redn. of)